



# The Record

Denver Geophysical Society

Volume 48 Number 2 March 2023

## Upcoming Events

### April Luncheon

Sagnik Dasgupta, SLB  
April 13, 12:00 pm  
Wynkoop Brewing Company

### May Luncheon

Dale Bird, Bird Geophysical  
May 11, 12:00 pm  
Wynkoop Brewing Company

### DGS Rockies Baseball

TBD

### URTeC 2023

June 13-15  
Colorado Convention Center

### August Luncheon

August 10, 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

### September Luncheon

September 14, 12:00 pm  
Wynkoop Brewing Company

## Special Edition

## 3DSS 2023 Photo Wrap Up

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# Executive Corner

By Melinda Gale  
Colorado School of Mines—RCP  
DGS Editor

## Branching Out—DGS Celebrates Geophysics

### 2023 3DSS and Student Challenge Bowl

This year's 3D Seismic Symposium theme, *Branching Out*, highlighted the diversity of today's geophysical challenges with a technical program ranging from innovative solutions addressing traditional seismic challenges to the development of new geophysical tools on the forefront of energy management. Whether we are exploring for oil and gas, looking for more efficient strategies to develop existing production, managing geothermal reservoirs, or defining safe CCUS storage reservoirs, geophysics plays a key role in defining our energy future. The 28th 3DSS was a celebration of these varied geophysical branches and exemplified the importance of learning from one another as we explore new applications of our science.

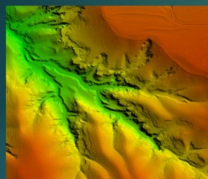


We thank the 42 sponsors, 12 Exhibitors, and endless array of committees and volunteers who created this high quality program and gave us the opportunity to expand our geophysical community. We also celebrate the return of the DGS SEG Student Challenge Bowl. After the disruptions of the last few years, it's good to see the full spectrum of DGS programming once again!

On that note, the DGS Board looks forward to a strong calendar throughout 2023. On the technical side, DGS will host monthly 2nd Thursday lunch-n-learns and a DGS Workshop this fall. We also look forward to Rockies baseball outings, possibly an Avs Watch Party, and the always fun DGS Holiday Party. We hope you will join us!



## EE GeoTech



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303-915-1241

**Thank you to Dave Purcell**  
for his generous contribution of photos  
to this issue of The Record



### 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

730 17th Ste B-1 Denver, CO 80202

[office@denvergeo.org](mailto:office@denvergeo.org)

### 2023 DGS OFFICERS

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SM Energy 406-633-3108

[jjawila@sm-energy.com](mailto:jjawila@sm-energy.com)

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#### TREASURER - JESS VAHLING

Occidental Petroleum 720-660-7128

[Jess\\_vahling@oxy.com](mailto:Jess_vahling@oxy.com)

#### EDITOR – MELINDA GALE

CSM Geophysics, RCP [msgale@mines.edu](mailto:msgale@mines.edu)

#### PAST PRESIDENT - MARK DAVIDSON

Telemark Energy Services 281-799-8853

[mdavidson@telenrg.com](mailto:mdavidson@telenrg.com)

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SARAH GACH and MARK DAVIDSON

[3DSSchair@denvergeo.org](mailto:3DSSchair@denvergeo.org)

#### CONTINUING EDUCATION

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#### GOLF TOURNAMENT

BRIAN PLUEMER and MATTHEW ROMERO

[golf@denvergeo.org](mailto:golf@denvergeo.org)

#### LUNCHEON PROGRAM - TRAVIS PITCHER

[travis.pitcher@bpx.com](mailto:travis.pitcher@bpx.com)

#### MEMBERSHIP - ANDREW KEENE

[akeene@sm-energy.com](mailto:akeene@sm-energy.com)

#### NOMINATIONS - MARK DAVIDSON

[mdavidson@telenrg.com](mailto:mdavidson@telenrg.com)



# Student Challenge Bowl

Student teams from Colorado School of Mines and the University of Colorado competed to correctly answer the most geological, geophysical, and SEG trivia questions with audience participation during the 3DSS Icebreaker on March 1st. ***Thank you to Dawson Geophysical, the RMAG Foundation, Silverthorne Seismic, and Tricon Geophysics for sponsoring!***



SCB Teams: RCP's Colorado Transplants, James Carmichael and David Herman, CSM; Tsunami Bros, Adam Manaster and Cole Lombardi, University of Colorado; and Morpheus, Cash Cherry and Samantha Burton from CSM.



Tanya Inks moderates the Challenge Bowl



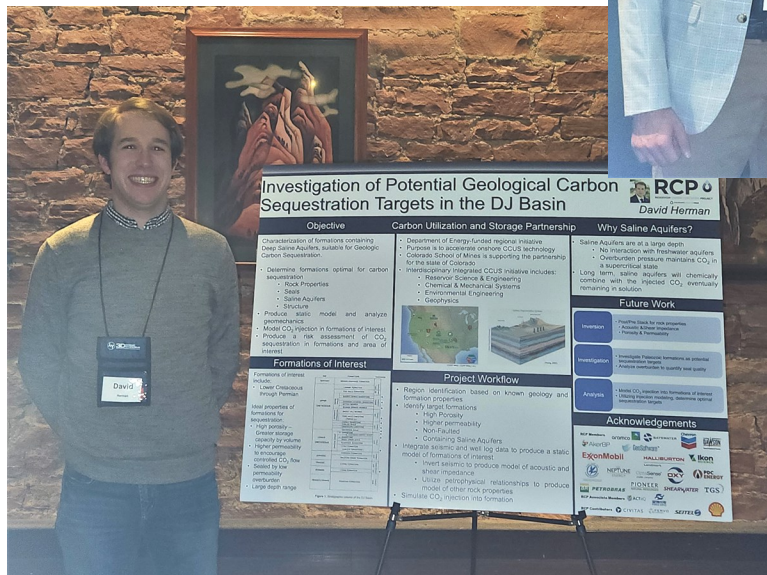
Winners James Carmichael and David Herman, team "RCP's Colorado Transplants" from CSM each win \$1000 towards IMAGE 2023 registration, airfare, and lodging.



SCB Photo Credits to Sarah Gach and Lisa D'Ambrosia



# Student Corner



Colorado School of Mines students Ali Rabaan and David Herman participate in the Student Poster Session during the 3DSS Icebreaker on March 1.

Student Poster Session Photo Credits to Sarah Gach

## Thank you to our 3DSS Student Volunteers!



Anna Titova, Colorado School of Mines PhD student, checking in 3DSS attendees



Iga Pawalec, Colorado School of Mines PhD student

# 2023 Technical Program

## Morning Session

Session I - Chairs - Jess Vahling, Joel Scott

- 8:00 Opening Remarks
- 
- 8:10 Kickoff talk:  
**The Changing Tools and Roles of Geophysicists**  
 Dr. Bob Clapp, Stanford University
- 8:55 **Give me a Break: ML Assisted Seismic Interpretation and applications for US Land**  
 Sandra Labrum, SLB
- 9:15 **The value of 3D seismic in site screening and characterization for geological CO<sub>2</sub> storage projects: a case study from the Texas Gulf Coast**  
 Mindy Solomon, Oxy Low Carbon Ventures
- 9:35 **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, University of Texas, BEG
- 
- 9:55 Break

Session II - Chairs - Brad Birkelo, Jim Folcik

- 10:30 **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
- 10:50 **The business of CCS**  
 Lauren Read, BKV dCarbon Ventures
- 11:10 **Fault Identification Utilizing Seismic Attributes and Well Data for Mitigating H<sub>2</sub>S and Water Production in the Delaware Basin Wolfcamp Formation**  
 Jason Gumble, Antora Geophysical

11:30 Lunch Break



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# 2023 Technical Program

## Afternoon Session

12:15

Keynote Address:

**The Mechanics of Induced Seismicity and the System Characterization Challenge**

Dr. Peter Hennings, University of Texas, BEG

1:00

Break

Session III—Chairs Sarah Gach, Douglas Carlson

1:30

**Is Dense Shooting the Only Option to Improve Our 3D Seismic? The Mikro Teszt Embedded Acquisition Experiment**

Morgan Brown, Aspect Energy

1:50

**The opportunities & challenges for Seismic Data in Geothermal Exploration**

Whitney Trainor-Guitton, NREL

2:10

**Single-Use Fiber Analysis on Fault-Driven Frac Propagation Anomalies in the Midland Basin**

Dugan R. Hughes, Ovintiv

2:30

Break

Session IV—Chairs Morgan Brown, Kevin Wright

3:00

**Distributed Acoustic Sensing on the surface (S-DAS): Insights from a large-scale experiment**

Ran Bachrach, SLB

3:20

**Geothermal Analysis and Reservoir Management - The Geysers Case Study**

Adrien Caldron, Aspen Tech

3:45

**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.

4:05

Closing Remarks - Best Speaker voting - Drinks & Awards



2023 3D Seismic Symposium | 13

## DGS 3DSS— Ellie Caulkins Studio Loft, DCPA, Denver, CO









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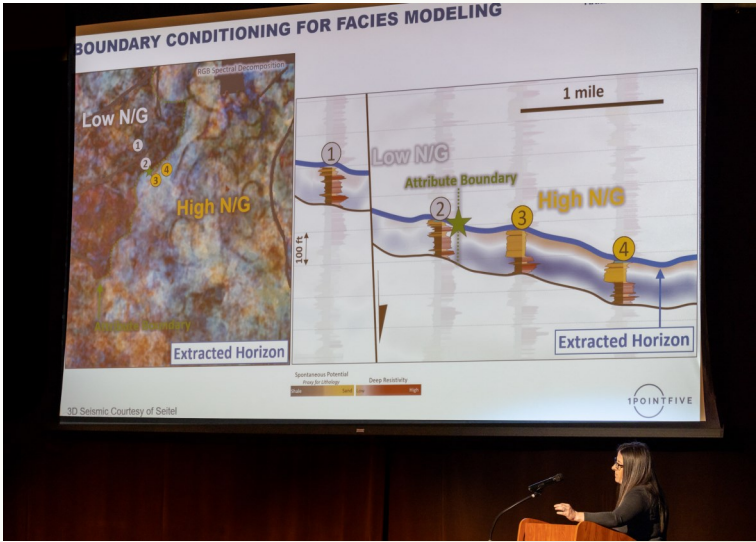
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# Kickoff Talk and Technical Program





## DGS 3DSS— Exhibitors



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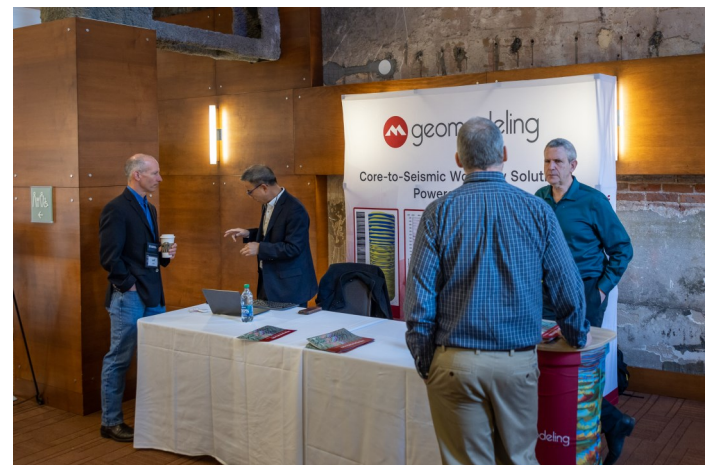
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## DGS 3DSS— Exhibitors



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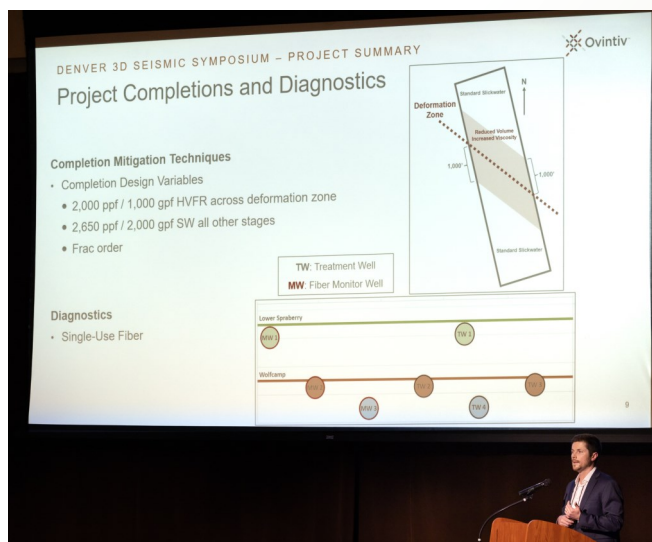
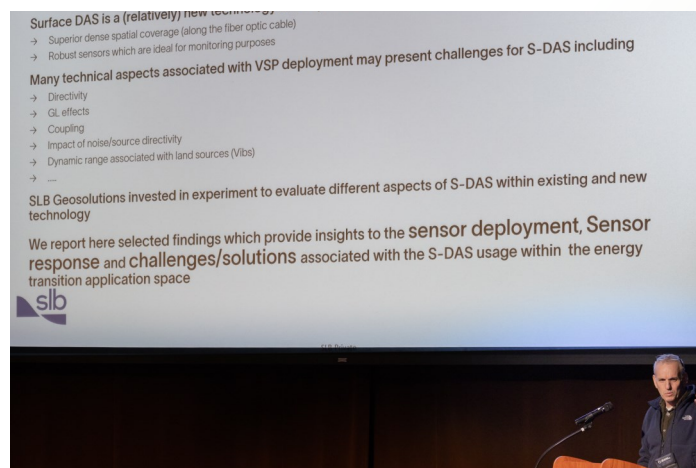
Qeye







# Keynote Address and Technical Program









## R. Randy Ray Best Speaker Award Seth Berman, Ovintiv



Awarded to Seth Berman for ***Value Generation by Reprocessing a 3D Seismic Volume: A Case Study from Unita Basin on Transforming A "Challenged" Dataset Into a "Useful" Dataset***, by Seth Berman, Phil Keith, and Mitch Preston



Accepted on Seth Berman's behalf by Dugan Hughes and Jill Thompson. Photo with Sarah Gach, 3DSS Committee Co-Chair, and Brad Birkelo, 3DSS Awards Chair.

# Monthly Luncheon Talks

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

## April Luncheon Talk

### **Comprehensive lithological description, reservoir property and pore pressure prediction for unconventional shale reservoirs using rock physics: Midland reservoir characterization case study**

*Sagnik Dasgupta*

#### Abstract:

Unconventional reservoirs are generally found to be primarily heterogeneous and with complex mineralogy. Variations in production at different stages from the same horizontal wells clearly demonstrate the complexity of these source rocks. Inversion of seismic data plays a critical role in understanding this spatial variability. Identification of lateral variations of elastic lithofacies, associated mineralogical composition, kerogen and porosity can be achieved by integrating rigorous rock physics models with seismic inversion results. Reservoir pressures in this kerogen rich source rock is another crucial property for successful production. As generation of hydrocarbons from kerogen and the associated volume expansion makes such pressures develop, high resolution pore pressure estimation helps to identify the reservoir quality and possible completion strategy for such cases. Herein, we present results of lithoclassification as well as reservoir property and pore pressure prediction, all derived from elastic parameters of input prestack Amplitude-Variation-with Angle (AVA) inversions from the Midland Basin, in West Texas.



#### Bio:

Sagnik Dasgupta is a Senior rock physicist at SLB (Houston, Texas). He has worked at SLB for 16 years and has been in the field of rock physics for the last 14 years. As a rock physicist, he has worked different projects both onshore and offshore from China, Malaysia, India, Kuwait, Nigeria, Egypt, and Argentina and presently is working on different projects in the US, Canada, and Mexico. He received his M.Sc. and M.Tech. degree in geosciences from the Indian Institute of Technology Bombay (India). His main interests are rock physics, petrophysics, geophysics and geomechanics, bringing different data from different disciplines to understand the behavior of rocks. He has published several papers in different geophysical societies and is an active member of SEG and GSH.





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### May Luncheon Talk

**Magnetic Layer in Powder River and Denver-Julesburg basins: a new crustal temperature constraint for estimating thermal properties in sedimentary basins**



*Dale Bird*  
*Bird Geophysical*

## 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."



# 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.

