



The Record

Denver Geophysical Society

Volume 48 Number 3 May 2023

Upcoming Events

DGS 2023 Golf Tournament
August 17, 2023
Walnut Creek Golf Preserve
Westminster, CO

IMAGE 2023
August 27—September 1, 2023
Houston, TX

DGS Rockies Baseball
September 26, 2023
Coors Field
Denver, CO

DGS 2024 Officer Elections
October 2023

DGS Holiday Party
December 14, 2023
Ellie Caulkins
Denver, CO

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Executive Corner

By Jess Vahling
Occidental Petroleum
DGS Treasurer

2024 Election Season: We Want You!

It seems early to be writing this in May, but alas the time is here to start thinking about executive committee elections for 2024. As a member of the committee over the last two years I've found a lot of joy in connecting with other geophysicists and giving back to the Denver geophysical community. My role as treasurer has put me in a unique position to truly understand where we came from during the pandemic years versus where we are now.

Our bank account balance has nearly doubled since early 2021 and we are a thriving society. Several other societies have reached out recently for advice as they have seen firsthand that we still have regular luncheon attendance and thriving events such as at the 3D Seismic Symposium. This is wholly in part to the volunteering of the executive committee and the sub-committees for events like the Symposium and the golf tournament. A HUGE thank you to everyone who has donated their time and energy.

As many of you know we are now a fully volunteer run society which allows us much more financial flexibility. We have found ourselves in a place where we can give back to our members through lowering event costs and are also able to donate to student organizations. Have I convinced you to run yet? I would like to give a brief rundown of the roles up for election. If you are interested or would like to nominate anyone, please email excom@denvergeo.org.



Vice President: Responsibilities include organizing monthly luncheon speakers and any technical workshops.

This role includes a special commitment over a 4 year period as the Vice President will assume the role of President the following year and stay on the board as “Past President” for the following 2 years to provide continuity. The role of President is to preside over monthly ExCom meetings, appoint sub-committee chairs and have signatory responsibility over DGS contracts.

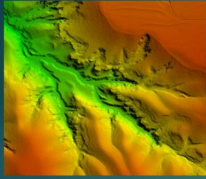
Secretary: Takes and publishes minutes at the monthly ExCom meetings. Our current secretary has also taken on organizing the end of year holiday banquet and baseball games. This is a one year commitment.

Treasurer: Creates a monthly financial report for the ExCom meeting, invoices members when necessary, gets mail and deposits checks at the bank. This is a one year commitment.

Editor: Responsible for soliciting papers and materials for The Record; creation and distribution of The Record. This is a one year commitment.

I hope to see your name on the elections list in the August edition of The Record. As a community we can continue to keep this vital society alive and thriving!

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
303-915-1241

Join us for DGS Rockies Baseball!

Tuesday Afternoon September 26, 2023

contact Andrew Keene
with any questions
akeene@sm-energy.com

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. 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.

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2023 DGS OFFICERS

PRESIDENT - JEFF ZAWILA

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BPX

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office@denvergeo.org

denvergeo.org/advertising-in-the-record/

3D SEISMIC SYMPOSIUM

SARAH GACH and MARK DAVIDSON

3DSSchair@denvergeo.org

CONTINUING EDUCATION

TRAVIS PITCHER

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GOLF TOURNAMENT

BRIAN PLUEMER and MATTHEW ROMERO

golf@denvergeo.org

LUNCHEON PROGRAM - TRAVIS PITCHER

travis.pitcher@bpx.com

MEMBERSHIP - ANDREW KEENE

akeene@sm-energy.com

NOMINATIONS - MARK DAVIDSON

mdavidson@telenrg.com

NEW TO MARKET ROCKIES 2D

CONTACT TO SCHEDULE YOUR QC

832.851.0987

Peyton Wilson

Silverthorne
Seismic LLC
Enhancing Exploration
info@silverthorneseismic.com

832.731.7468

Bart Wilson

New to Market 2D Seismic Available in Wyoming, Utah, and Colorado!

DGS Executive Committee Nominations!

If you are interested in participating in the DGS Executive Committee or you would like to nominate someone—the DGS Nominating Committee wants to hear from you! excom@denvergeo.org



Vice President, 4-year term (2+2)

Primary Responsibility: monthly luncheon talks and technical workshops, followed by 2-year term as DGS President

Secretary, 1-year term

Primary Responsibility: monthly DGS ExCom minutes

Treasurer, 1-year term

Primary Responsibility: monthly financial report, invoicing

Editor, 1-year term

Primary Responsibility: quarterly publications of The Record, content

Student Corner — Geophysics Field Camp

Colorado School of Mines Geophysics Field Camp Explores Steamboat Springs and the Yampa Valley, Colorado

As a rite of passage, Geophysics Field Camp creates some of the most cherished memories for undergraduate geophysics students. The opportunity to acquire geophysical data and analyze it in a real world environment is irreplaceable—not to mention the many stories created by mishaps, weather, and unforgettable scenery! Colorado School of Mines has hosted students in a field camp environment since the inception of the Department in 1926 in many locations around Colorado and surrounding states. Alumni share stories from Pagosa Springs, Fairplay, Golden, and more. Today, students call the Colorado Mountain College campus in Steamboat Springs home while spending their days exploring the Yampa Valley utilizing nearly a dozen different geophysical methods, including reflection and refraction seismic surveying, ground penetrating radar, distributed fiber optic sensing, and transient electromagnetics.



Photo Credit: Dr. Seth Haines, USGS

Geophysics student Jack Howard uses a sledge hammer to generate seismic waves while student Salem Bin Zaqr provides cable management support as the group investigates the geologic structure of Spring Creek Park in Steamboat Springs, Colorado



Photo Credit: Dr. Brandon Dugan, Mines Geophysics
CSM President Dr. Paul Johnson, geophysics students, and GPR



Photo Credit: Dr. Matt Siegfried, Field Camp Director, Mines Geophysics

Students, teaching assistants, and a subset of instructors at the 2023 Mines Geophysics Field Camp in Steamboat Springs, Colorado

DGS Rockies Baseball

May 17, 2023



Jeff Zawila, DGS President—enjoying the game



Covered seats—nice!

1950 - 2023
DENVER GEOPHYSICAL
SOCIETY
73rd Annual Golf Tournament
4 Person Scramble



Enjoy a day of special events, networking and 18 holes of golf including cart, breakfast, lunch, beverages, door prizes and an exciting awards banquet... All for just \$600 per 4-Some or \$150 per individual. Non-Members add \$50.00 per player (includes DGS membership).

Thursday, August 17, 2023 9:00 am Tee Off
Walnut Creek Golf Preserve Westminster, Co.

CONTESTS

- Longest drive contests
- Closest to the pin challenge
- Hole-in-One Shootout
- And much more...

Early Registration

\$600 per team or \$150 per player
Non-Members add \$50 (includes DGS membership)

Sponsorships Available

Contact Mathew Romero – golf@denvergeo.org
(303) 725-4598 for sponsorship opportunities and information

Registration Limited

Please pre-register by going to: denvergeo.org

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 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.



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.

Monthly Luncheon Talks

May Luncheon Talk

Heat flow and Supervised Learning in the Denver-Julesburg and Powder River Basins: applying The Magnetic Layer to control thermal property calculations

Dale Bird

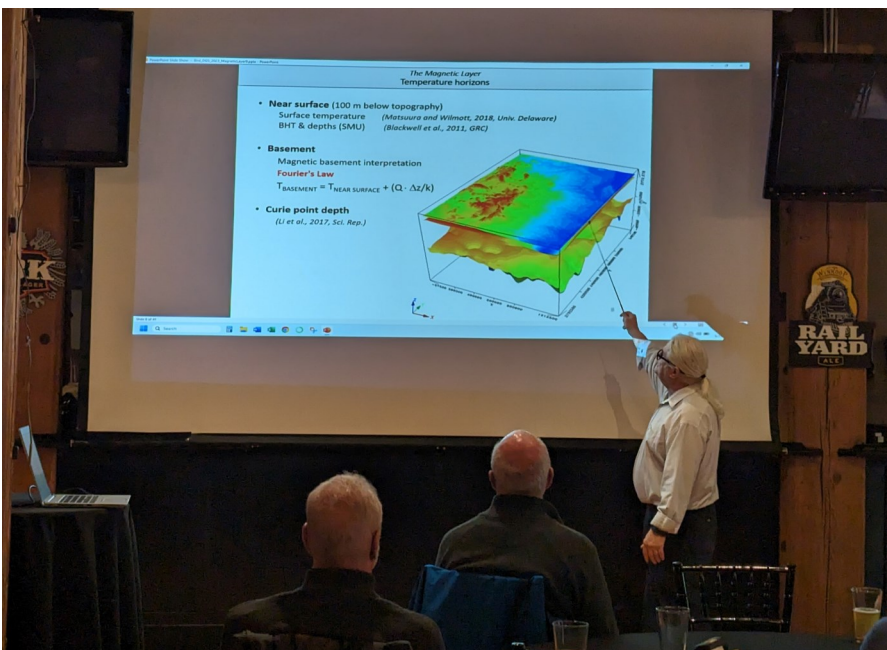
Abstract:

Our study makes use of magnetic anomalies produced between the top of crystalline basement and Curie point isotherm depths, which we call The Magnetic Layer (TML). The study area includes two foreland basins, Denver-Julesburg and Powder River, which formed along the eastern perimeter of the Laramide deformation front. We demonstrate that magnetic data analyses, combined with thermal property station data (heat flow, thermal conductivity, heat production), support thermal property calculations in the sedimentary basin layer as well as TML. We further demonstrate that these results are improved by Supervised Learning analyses.

We outline a method that integrates thermal properties with basement terranes interpreted, in part, from magnetic susceptibilities derived from 3D modeling, to generate thermal models for the Denver-Julesburg and Powder River Basins. These models are refined, employing a suite of Python-based Supervised Learning algorithms, to compare heat flow prediction from thermal properties in the sedimentary basin layer with



those in the sedimentary basin layer + The Magnetic Layer. We conclude with examples that connect derived thermal properties with geological elements in the study area.



Dale Bird is a consultant specializing in tectonophysics and interpretation of potential fields. He has 30+ years of world-wide experience. Dale earned B.S., M.S., and Ph.D. degrees from the University of Houston, where he is a Research Associate Professor. He has been an active member of several professional organizations including: AAPG, AGU, EAGE, HGS, GSA, GSH and SEG.



The Record Advertising

Select Ad Type and Size from this table:

Ad Type and Size:	1 Month	Yearly (minimum 4 issues)
Full Page 7.25" wide by 9.75" tall	\$150	\$500
Half Page 7.25" wide by 4.75" tall	\$100	\$375
Quarter Page Vertical 3.5" wide by 4.75" tall	\$50	\$200

All advertisements must be received in jpeg format.

DGS Wildcatters

*The Record would like to add
Rocky Mountain Wildcatters
stories to our quarterly
publications.*

Contact us with your ideas!

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 – March 2023

Denver Geophysical Society – March 22, 2023 – ExCom Meeting

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

Minutes: February approved.

Treasury Report: Jess executed form for bank approval to add Travis to the First Bank account.

3Dss: Winner of Best Speaker was Seth Berman from Ovintiv. Two large pieces of feedback: A/V issues potentially bad lighting, and the ambient noise level near the edge of the seats. Dates for 2024: potentially end of February 2024. We should begin to set contracts now for next year, worth sending an email to Keith to potentially hold two possible dates (Wednesday/Thursday). Jeff to work with Sarah to initiate.

Happy Hour Charge: ~\$5,000

3Dss Charge: ~\$20,000

The Record: Melinda plans to get special edition out by end of March. She could use a blurb describing the intent/purpose of the branching out theme for the 3Dss – Melinda to write and sign, covering her Executive Corner for the year. Melinda has a lot of photos as well!

Luncheon Updates: SLB talk by a Sr. Rock Physicist for seismic/AVO analysis in April. In May, we have Dale Bird, giving a potential fields talk about the Powder River/Rockies. Both are scheduled and confirmed on the books. Abstract and headshot is in for the April talk, not yet for May. Travis to send abstract bio and headshot to Melinda so she can include it in the special edition of the Record.

Golf Tournament: August 17th at either Walnut Creek or Legacy Ridge.

Rockies Game: May 4th baseball game. Melinda to publish in the Record. Single-company sponsorship seems to work, last time we had a sponsorship of \$250 and after member-subsidized tickets, we likely broke even. An Avalanche happy hour coinciding with a playoff game might be a good option as well!

DGS Storage Locker: New lock after old lock broken. New code is 1950 (the year DGS was chartered with SEG). New disc lock should hopefully help. Nothing significant seems to be taken. We have a lot of random office supply items that could be disposed of, unless we have a good use for it. Joel re-organized the locker to partition and label items.

Is there anything that is critical to our organization that we do not want in the storage locker? Joel votes for the storage locker – we now have a better lock. Recall that there is a separate code to get into the gate. These are in the log-ins page.

Christmas Party: Date for the Christmas Party – let's get the contract from Keith so we can confirm the date (December 14th). Andrew to reach out to Keith for contract.

PO Box: We got a notice for non-payment for the box, which we have closed, so everything is clear. We need to return keys – Andrew to reach out and ask group about who may have the other key.

Need to alert state of CO about new officers on executive committee. Need to move official address back to DERL as well. Filing annual update is important, and what is happening with legal team we have potentially retained? Jeff to reach out to Jess about tax form, Joel to help. Did Mark sign?

Cyber Security Panel: Melinda has two people from CSM who are interested in giving forum on cyber security – and Jeff also has that Petro Cyber Security point of contact who is interested as well. Jeff has an SM Energy contact who would jump into panel too – and perhaps we can get something on the books soon. Travis would be the determining factor for formulating the workshop – and Travis also knows BP would be possibly interested in participating.

DGS Meeting Notes – April 2023

Denver Geophysical Society – April 12, 2023 – ExCom Meeting

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

Minutes: March approved.

Treasurer's Report: Jess reached out to Alyssa to get Travis on account.

Current Bank Balance: \$165,127.70 (but have not paid Ellie Caulkins bills for 3Dss etc.)

March Revenue: \$4500 (3Dss sponsorship)

March Net Revenue: \$461.92

Jess working to update google drive with statements and monthly records for excom to see. Jess to reach out to Morgan to discuss Survey Monkey options – and perhaps save us money. Jess to give students a check for 3Dss, perhaps on campus in front of consortium!

The Record: Melinda: The 3Dss Special Edition was published, next edition goes out in May.

3Dss: Contract not needed – but we can save the date.

Luncheon Updates: April: Rock Physics talk from SLB, May: Dale Bird discussing potential fields, and Travis to reach out to ensure with Wynkoop that we always have the venue for future dates, since we currently do not have a standing reservation every month. Travis has 5-10 names of folks who want to give talks in upcoming months. Joel thinks we should have an annual contract to ensure dates are not already booked – others second, Travis to go forward with this goal.

Golf Tournament: Walnut Creek, August 17th. Sponsorship has gone out with the invite. We have already received sponsorships!

Baseball Game: May 17th @ 1:10PM, 30 seats reserved in shaded section. With \$10 concessions funds, cost of ticket is \$27/person. Charge members \$15/person and non-members \$27. Andrew is actively soliciting sponsorships in the \$100-300 range to cover extra cost of subsidizing tickets for members. Need to get final numbers by May 3rd, and Jess to help pay Rockies (as well as process sponsorship).

Storage Locker: Someone needs to send an email to the storage locker company. Travis to be new point of contact.

DGS Holiday Party: Contract is in. 12/14/2023 – roughly \$8,300 (not much of a change from last year).

Need to have ballot published by end of August, and elections open in October. We usually put the nominations in the August edition of the Record. We also need to begin to think about awards and honors. Melinda to include call for nominations for VP, treasurer, secretary, and editor.

Taxes are due in November. Jess has contact info for the accountant.

Lots of undeliverable emails, Jeff and Joel to work together to determine ways to purge emails from membership directory.

We need to discuss student fees more, perhaps at next meeting!

DGS Meeting Notes – May 2023

Denver Geophysical Society – May 8, 2023 – ExCom Meeting

Attendees: Jeff Zawila, Andrew Keene, Melinda Gale, Jess Vahling

Minutes approved from April.

Send Jeff vacation plans for June and July so we can hold a meeting, as per the requirements.

Treasurer's Update:

FirstBank Balance: \$172,605.48

PayPal Balance: \$1,249.59

Much of this is because of the golf sponsorships and final 3Dss sponsorships (this latter is all done, Jess can wrap up balances.) April net revenue total is \$8,026.52. Mark needs to get in and cancel the Survey Monkey because of secondary verification. Jeff left a message with Keith for payment on 3Dss – hoping to button up soon.

We need to get Travis on the bank account.

The Record – new advertiser (Silverthorne) with a half-page ad for a year. Melinda plans to post the April and May luncheon abstract – including upcoming events (baseball game and golf tournament) as well as a call for nominations.

3Dss: Waiting on Sarah for date.

Luncheon: Dale Bird – May 11th. Nothing in June or July.

Baseball game set. 25 attendees, SM Energy sponsored. May 17th at 1:10PM. Tickets to be distributed virtually with MLB ballpark app. They are loaded with \$10 concessions voucher. Next game tentatively scheduled for September 26th.

Jeff needs to review the Holiday Party contract that Andrew sent over. Joel updated website on 3Dss access – but perhaps needs to be reviewed or looked at.

Jess wants a bigger presence on LinkedIn, perhaps recaps of events (maybe monthly speaker pictures) as well as baseball game photos. Jess and Andrew to initiate and tag-team for month of May!

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.

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.

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.

