IN THIS NEWSLETTER:

3D Seismic Symposium Summary and Agenda

Register today before rates increase

3D Seismic Symposium Ice Breaker & Student Challenge Bowl

SEG Competency Management System

Business Cards

Renew your DSG Dues for 2020

DGS Executive Team January’s Board Meeting Minutes

UPCOMING EVENTS:

Monday March 16th:
3D Seismic Symposium Ice Breaker & Student Challenge Bowl, 5pm at Ellie Caulkins Opera House

Tuesday March 17th:
3D Seismic Symposium, 7:30am at Ellie Caulkins Opera House

Thursday April 9th:
DGS Monthly Luncheon, 11:30am at Wynkoop Brewery
REGISTER HERE
This year’s theme, Vision 2020: Revealing the Reservoir, highlights a mix of case studies from across the United States and technology workflows.

Kevin Raterman, Engineering Fellow at ConocoPhillips, will kick off the day by presenting the simulated rock volume (SRV) pilot project undertaken in the Eagle Ford. Utilizing a dataset including core, image log, microseismic, DTS/DAS, and pressure data, the observed reservoir state preceding and following hydraulic fracturing will be presented, emphasizing geologic, geophysical, reservoir engineering and completions related observations.

Brian Owens, Senior Vice President (SVP) of the Rockies at Occidental, will offer the keynote discussing Oxy’s roadmap for success, detailing where they have been and where they are going. Highlights will include the elevation of the subsurface team role to better execute their unconventional reservoir strategies, Oxy’s low carbon plan and how they plan to use oil and gas production to reduce the net carbon in the atmosphere, their recent Permian solar project, and career path observations for success in energy companies moving forward.

Close to home in the Rockies, the DJ Basin will be in the spotlight during Sheila Harryandi’s presentation on sweet spot identification through pre-stack seismic inversion and multi attribute transform. From the Green River Basin, Elizabeth LaBarre, Ultra Petroleum, will present a structural evolution of the Pinedale Anticline.

Multiple levels of detail in the Permian Basin continue to be revealed as operators and service companies continue to delineate and high-grade opportunities. WesternGeco’s Vasudhaven Sudhakar will present how proactively avoiding water production hazards and excess water improves development economics.

QEP Resources, presented by Jill Thompson, will discuss how they are improving their prediction of Midland Basin well performance by leveraging seismic and reservoir properties with machine learning.

From the Delaware Basin, Randal Utrech, from Schlumberger, will discuss optimizing stacked play development by incorporating seismic elastic and discontinuity properties into an
integrated earth model to improve assessment of fracture geometries and production interference.

On the technology side, talks will add perspectives from acquisition to seismic inversion. Anastasia Poole, Schlumberger, will discuss the benefits of high density seismic to gain insight on unconventional reservoirs. Fairfield Geotechnologies’ Bruce Karr and Ron Blanco, Fasken Oil and Ranch, will describe the impact of high density seismic on full data integration. Tom Bratton, APEX Petroleum Engineering, will challenge the selection and application of rock physics and geomechanical models as he discusses the implications of such in seismic interpretation.

iReservoir’s Reinaldo Michelena will highlight seismically constrained permeability modeling of reactivated natural fracturing to help estimate the impact of hydraulic fracturing. Ke Wang will discuss Chevron’s use and application of deep neural networks for seismic inversion.

Brian Fuller with Sterling Seismic will present details on time-lapse reservoir properties imaging using surface sources and a permanent horizontal DAS cable.

To jump start the 3D Seismic Symposium, the DGS will host an evening happy hour along with the Rocky Mountain Region Student Challenge Bowl on Monday March 16, 2020 from 5 pm to 7 pm at the Ellie Caulkins. In light of the entertainment from last year, everyone is encouraged to join the fun of competing in the Challenge Bowl.

The 3D Seismic Symposium will be held Tuesday March 17, 2020 from 7:30 am to 5:00 pm at the Ellie Caulkins Auditorium, Denver Center for Performing Arts Complex, in downtown Denver, Colorado. Registration and continental breakfast begin at 7:30 am with the technical program running from 8 am to 4:30 pm. Drinks and awards to follow until 6 pm.

Join us and enjoy networking opportunities along with the technical talks and visiting with exhibitors at the 3D Seismic Symposium.

Registration rates will increase in March, register today and save!!!
<table>
<thead>
<tr>
<th>Authors / Speaker in Bold</th>
<th>Company</th>
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^ 26th Street Consulting, LLC | Eagle Ford | Analysis of a Stimulated and Drained Rock Volume: An Eagle Ford Example |
| **KEYNOTE: Brian Owens with Klaas Koster** | Occidental | | “Oxy: Where we have been, where we are going.” |
| Sheila Harryandi*, Ali Tura^ | * California Resources Corporation  
^ Colorado School of Mines | DJ | Sweet spot identification through seismic inversion and multiattribute transform: A case study of the Niobrara and Codell unconventionals |
| Tom Bratton | APEX Petroleum Engineering | DJ | Innovations in Geomechanics with Implications for Seismic Interpretation |
| Elizabeth LaBarre*, Freya Marks*, Thomas McGrath*, Paul Clarke*, Alex Long*, Andrew Gordon* | * Ultra Petroleum  
^ Petroleum Experts Ltd | Green River | The Ups and Downs of the Pinedale Anticline - A Structural Evolution Story |
| Reinaldo J Michieleana, Hai-Zui Meng, and Huabing Wang | iReservoir | Eagle Ford | Seismic constrained permeability modeling of reactivated natural fractures from hydraulic fracture stimulation |
| Vasudhavon Sudhakar, David Paddock | WesternGeco | Permian | Improving development economics by avoiding excess water in the Permian |
| Randal Utech, Priyavratt Shukla, Lili Xu, Alfiya Nikolaeva, Chris Dorion, Li Fan, Lee Swager, Lance Smith, Kashif Naseem, Shekhar Sinha, Vivian Rohrback | Schlumberger | Permian Delaware | Optimization of Stacked Play Development in Delaware Basin – A Step Change in Multi-disciplinary Value Creation |
| Ke Wang | Chevron | Permian Midland | Deep Neural Network for Seismic Inversion |
| Anastasia Poole | WesternGeco | Permian Midland | Working in harmony: high source and receiver effort seismic acquisition in the Permian Basin raising seismic standards to a new level |
| Bruce Karr, Ron Blanco | * Fairfield Geotechnologies  
^ Fasken Oil and Ranch | Permian | The next generation of seismic data density: A look at the Central Basin Platform massive deposition into the Midland Basin across Mud City and Fasken C-Ranch |
^ Jonah Energy | Permian Midland | Leveraging seismic and reservoir property variables to improve prediction of horizontal well performance: a case study of machine learning in the Midland Basin, Texas |
| Brian Fuller*, David Langton^, Tom Bratton^^ | * Sterling Seismic & Reservoir Services  
^ Devon  
^^ APEX Petroleum Engineering | Mid Continent | Time Lapse Seismic Imaging with a Horizontal DAS Cable for Reservoir Surveillance |
Come support and network with undergraduate and graduate students from regional colleges and universities as they compete against each other answering geology, geophysics and SEG trivia at the Student Challenge Bowl!!

**What is the Student Challenge Bowl?**

Up to 16 teams of two students (undergraduate and graduate) participate in a quiz show format, answering multiple choice questions that test the depth and breadth of their knowledge of geology, geophysics and the Society of Exploration Geophysicists. Historically, students have traveled from Colorado, Wyoming, Utah, Arizona and Montana to participate!

Teams are eliminated through three rounds until one team is left standing and winners are declared! Winners will receive funds toward a trip to compete in the Student Challenge Bowl World Finals at the SEG Exposition and Annual Meeting in Houston in October 2020!

The registration for the Student Challenge Bowl is limited to the first 16 teams or March 13th, whichever comes first.

Support your favorite team and see how many questions you can answer correctly!

This is a free event to attendees and exhibitors of the 3D Seismic Symposium, so register today and come support your local Geophysics students.

This will be a great opportunity to support Geophysics student as well as network. Cocktails and passed appetizers will be served.

Contact Sarah Gach at Sarah_Gach@eogresources.com to register your team!
SPONSORSHIP OPPORTUNITY

GET YOUR COMPANY’S NAME IN FRONT OF THE LARGEST GATHERING OF GEOSCIENTISTS IN DENVER!

SUPPORT THE 3D SEISMIC SYMPOSIUM AND THE DENVER GEOPHYSICAL SOCIETY BY SPONSORING AT ONE OF THE FOLLOWING LEVELS:

<table>
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<td>$4000+</td>
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<tr>
<td>DIAMOND</td>
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ADDITIONAL TYPES OF SPONSORSHIP ARE ALSO AVAILABLE

VENUE: ELLIE CAULKINS AUDITORIUM IN DENVER, CO

MORE DETAILS AT WWW.DENVERGEO.ORG

HAPPY HOUR AND CHALLENGE BOWL: MARCH 16TH, 2020

SYMPOSIUM: MARCH 17TH, 2020

SPONSOR 3DSS HERE
Exhibitor Booth Registration Packet

Fantastic Venue!
• Returning to the Ellie Caulkins Opera House
• Expanded space - 25 exhibitors

Ideal Exhibitor Area!
• In opera house lobby, adjacent to presentations
• Registration / coffee / bar / happy hour are intermixed

EXHIBIT @ 3DSS HERE
THERE’S ALWAYS ROOM FOR IMPROVEMENT
SEG COMPETENCY MANAGEMENT SYSTEM • FREE FOR MEMBERS
SEG.ORG/CMS
SEG Competency Management System

Manage your career potential with the SEG Competency Management System, a free benefit for SEG Members

The Society of Exploration Geophysicists has created the SEG Competency Management System (CMS) to help those in the global geophysics community identify new learning opportunities and manage their careers. SEG has partnered with IHRDC (International Human Resources Development Corporation), a respected provider of training and competency development solutions for the oil and gas industry, to provide this valuable tool.

This system, available free of charge to SEG members, provides an easy way for you to assess your current capabilities against specific competency models for key geoscience careers. The software is designed to easily identify competency gaps based on assessment results, then recommend a learning plan that helps close these gaps. You will be referred to SEG training resources, including eLearning courses, along with generic third-party course titles, SEG technical papers, books, and on-job work assignments.

Ten SEG competency models were developed and vetted by industry experts:

- Acquisition RnD Geophysicist
- Engineering Geophysicist
- Environmental Geophysicist
- General Geophysicist
- Non-Seismic Geophysicist
- Processing/Imaging RnD Geophysicist
- Quantitative Seismic Interpreter
- Seismic Acquisition Geophysicist
- Seismic Interpreter
- Seismic Processing/Imaging Geophysicist
Business Cards

John Meehan - Quality Control

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johnmeehan@sprintmail.com

Place your Business Card or Advertisement in The DGS Record.
Contact us for Information
office@denvergeo.org
Renew your DGS Dues for 2020

CONTINUE TO RECEIVE DISCOUNTED REGISTRATION FOR:
• LUNCHEONS
• CLASSES
• 3D SEISMIC SYMPOSIUM
• GOLF TOURNAMENT
• AND MORE!

RENEW HERE
Welcome and Call to Order
Roll Call
Present: Angie Southcott, Kent Campbell, Joel Scott, Romina Portas, Kyrie Encinas, Janel Andersen, Ray Lisk

Agenda

1. Financials
   - December financials approved. Additional funds may be coming in from the holiday bash. 3DSS expenses upcoming. Additional ones as well. Kyrie has been working on sponsors: OXY, BPX have committed. Other ideas: grants, educational options, etc. Previous annual sponsors have been via Kyrie networking. Now want to put together a sponsorship committee. Kyrie will put together a proposal.
   - Membership: low renewal so far. Kyrie will send out a reminder. Asks to send out to a larger group of her professional contacts.

2. Minutes – December minutes approved

3. Monthly luncheons— Typically have 30 people attend
   - January – tomorrow
   - February – have talk
   - March – skipped (3DSS)
   - April –
   - May –
   - June – typically no meeting; maybe an event? Or a luncheon?
   - July –
   - Aug –
   - Sep –
   - Oct –
   - Nov –
   - Dec – no lunch, but holiday bash; should we look into something else? Need to decide on location by February

4. New Business
   - New “Articles of Incorporation” approved. Will be published for 30 days & members vote on it. Morgan is working on this.
   - Talked about doing more CE events.
   - Will resurrect the LinkedIn page and do more with that. Kent offered to do.

5. Student Challenge Bowl— Committee has met & working on it. Will be looking for volunteers

6. 3DSS— No sponsorship committee. Suggested to set one up

Next Meeting- February ExCom meeting: 2nd Wednesday for every month @ DNR office Feb 12 @ 4-5
PUBLISH IN THE RECORD

Please contact us office@denvergeo.org if you would like to have your company logo, business card, articles of interest, or any other relevant information published.

We are here to serve and keep the geophysical community up to date.