GET DOWN TO BUSINESS WITH BAG (BUSINESS OF APPLIED GEOPHYSICS) PLENARY SESSIONS. INCLUDED THIS YEAR WITH YOUR FULL DELEGATE REGISTRATION! HOT PLAYS HOT TOPICS HOT TECHNOLOGIES
DUG McCloud is the only cloud service that offers a completely integrated stack of compute, storage, geophysical software, and services. It’s your one stop shop for all the petaflops you’ll ever need – we have a massive 250 PF of geophysically-configured compute ready to go. The complete DUG Insight software suite is available, all highly optimised to run on the cloud. And you can value-add with DUG services if needed. Want to hear more? Contact Mick (McCloud) Lambert on +1 713 408 7471 or email mickl@dug.com

Drop by the DUGout at SEG booth #3338 and ask about DUG McCloud.
LETTER FROM THE PRESIDENT

Hello folks! We’re thrilled that you’ve joined us for the SEG International Exposition and 89th Annual Meeting in historic San Antonio, Texas. This remarkable gathering of thousands of geoscientists from all over the world will provide ample opportunity to share our best geophysical practices and advances in knowledge while making business decisions and having “un poco de” fun in the process.

This year’s Annual Meeting has everything from geophysical instruments to interpretation, and acquisition through analysis. The technical program features more than 1,070 quality presentations, with a focus on unconventional resource technology, the Permian Basin, Latin America, and a number of other fascinating topics like distributed acoustic sensing (DAS), drones, and big data analytics along with infrastructural and environmental applications, the business of geophysics, and recent offshore discoveries. We’ll explore how to bring technology and people together to conscientiously increase prosperity.

The Annual Meeting is an integral part of what we do at SEG and I’d like to thank the exhibitors, sponsors, and everyone who has put together technical and poster presentations. Your support contributes so much to ensuring a bright future in an exciting geophysical world.

Special thanks to the SEG19 Annual Meeting Steering Committee led by General Chair Glenn Winters, along with Vice Chair Kevin Woller, Technical Program Chair Dimitri Bevc, Technical Program Co-Chair Olga Nedorub, Exhibition Chair Dawn van Zeelst, Global Co-Chair Ana Curcio, Golf Tournament Chair Denise Dorsey, Business of Applied Geophysics Plenary Sessions Chair Bill Abriel, ASEP Chair Alf Hawkins, and Exhibits and Sponsors Co-Chair Debbie Mitcham. All of our dedicated staff and volunteers have worked hard to bring you a memorable time with many educational and networking opportunities.

We hope that you enjoy and are thoroughly inspired and edified by the Annual Meeting!

Sincerely,

Rob Stewart
SEG President 2018-2019
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**STAY CONNECTED IN SAN ANTONIO WITH THE SEG EVENTS MOBILE APP**

The SEG Events Mobile App provides interactive information about SEG19 right at your fingertips! Just search for SEG Events on Google Play or the Apple App Store.

If you downloaded the SEG Events App for a previous meeting, you can add SEG19 by navigating to the “Settings” menu and choosing “Load Another Meeting.”

With real-time updates and easy-to-navigate features, the SEG Events App will help you maximize your time in San Antonio.

Available for iPhone/iPad, Android, and Blackberry.
It is my pleasure and an honor to welcome you to the 89th Annual Meeting and Exposition of the Society of Exploration Geophysicists in historic, colorful San Antonio! I’m excited about this year’s program as I truly believe there is something of interest for everyone. This is your opportunity to engage with the world’s leading assembly of applied geophysicists, thought leaders and technical experts, all under one roof!

One of the hottest topics in this year’s technical program is Machine Learning and Data Analytics (MLDA), with six oral sessions, eight poster sessions, and a special session. Within the MLDA sessions are several subtopics, including interpretation, processing, and inversion. In this era of digital transformation, the machine learning theme is also pertinent to interpretation, near surface, and reservoir characterization. The program also includes sessions on geomechanics and fracturing, novel acquisition methodologies such as DAS, drones, and passive and EM methods – all applied to new and challenging hot plays, including the Permian and other tight rock plays, Latin America, and deep water. The unconventional emphasis driving many of the technical topics includes induced seismicity, distributed acoustic sensing, shear waves, land acquisition, microseismic, geomechanics, passive seismic, and fracture characterization.

In addition to all of the learning you’ll be doing, there will also be plenty of opportunities to make those all-important connections — lunch on the exhibition floor (visit with exhibitors about the latest, greatest technologies in our constantly evolving industry!); the popular Meet, Eat, and Greet breakfast for SEG members (meet committee leaders, share ideas, and learn more about SEG!); and the 2nd annual JAWS (Juice a Winning Startup) competition, our Shark Tank inspired entrepreneurial pitch contest, which promises to be as thrilling for the audience as it is for the contestants!

There’s fun, too, with any number of special events that will get you out and about in San Antonio. This distinctive, culturally rich city and surrounding area provides a variety of unique field trip and tour opportunities before, during (and maybe after!) the convention. And back by popular demand, there’s the SEG golf tournament, (at nationally recognized The Quarry Hills Golf Course); the Presidential Jam (SEG presidents past and present rock the house!); and the SEG Wrap-up Party: Latin Nights (Samba dancing! Cigar rolling! Rum tasting!).

Around this time last year, I agreed to serve as the chairman of the 2019 Exposition and Annual Meeting. I’d been active in my local geophysical and geological chapters in Midland (and now Dallas), but had limited exposure on the national stage. I then encountered a fantastic group of volunteers who were already in chairmanship positions, and coerced others to join the cause of making the 2019 event a memorable experience for the attendees.

Following the 2018 Annual Meeting in Anaheim, I met the SEG staff with whom I would be conversing weekly over the next year. They were all magnificent, but I want to give a special shout out to Rhianna Collier (Global Events Director), Sue Ellen Rhine (Exhibition & Sponsorship Sales), Jenny Cole (Education and Meeting Manager), and Beth Donica (Marketing & Communications Manager). I would also like to recognize my Vice Chair Kevin Woller, who went through a career change midway through the year. I would be remiss if I did not take this opportunity to thank the San Antonio Geophysical Society for their partnership.

West Texas Intermediate oil prices at the time of last year’s Annual Meeting in Anaheim started to drop from the low $70s to as low as $42.5 in December, and have since rebounded and hovered between $55 and the $60s. Many authors have shown that horizontal drilling accounted for approximately 15% of oil and gas production in 2004, and today it is responsible for more than 97% of drilling. In addition, in 2004, vertical wells generated 96% of crude production, and by 2018 these vertical wells accounted for only 7% of US oil and gas production. Another unfortunate fact is that horizontal wells in their first year of production can fall by more than 70%. With rates like these, producers are required to drill more wells and spend more capital, which is more and more difficult to obtain from investors. Hopefully sooner than later, those who want to drill will collaborate with their geophysicists and geologists for greater insight on which lands are more productive and plan better targets rather than seeing drilling as a manufacturing process.

Delegates, may you find the tools, technologies, and network you need to enhance your professional lives while in San Antonio. Exhibitors (more than 200 of you!), I thank you for your support and participation — may your booths runneth over. To all in attendance, your presence is essential to the success of this year’s event. May it be the best yet!

Welcome to SEG19!

Glenn Winters
SEG19 General Chair
## EVENT SCHEDULE

**Friday, 13 September**
- SEG DISC: Physics and Mechanics of Rocks: A Practical Approach 8:00 AM–5:00 PM Convention Center, Room 225D
- SEG Board of Directors Meeting 8:30 AM–5:00 PM Grand Hyatt, Bowie B
- Registration & Self-serve Registration 12:00 PM–5:00 PM Convention Center, Main Lobby
- SEG ExxonMobil Student Education Program (SEP) 4:00 PM–7:00 PM Grand Hyatt, Lone Star Ballroom, Salon A

**Saturday, 14 September**
- Registration & Self-serve Registration 7:30 AM–5:00 PM Convention Center, Main Lobby
- Continuing Education Courses 8:00 AM–5:00 PM Convention Center, Rooms 217-305
- Prayer Room 8:00 AM–6:00 PM Grand Hyatt, Independence
- SEG Board of Directors Meeting 8:30 AM–12:00 PM Grand Hyatt, Bowie B
- SEG ExxonMobil Student Education Program (SEP) 8:30 AM–5:00 PM Grand Hyatt, Lone Star Ballroom, Salon A
- SEG Chevron Student Leadership Symposium (SLS) 8:30 AM–5:00 PM Grand Hyatt, Lone Star Ballroom, Salon C

**Sunday, 15 September**
- Registration & Self-serve Registration 7:30 AM–8:00 PM Convention Center, Main Lobby
- Continuing Education Courses 8:00 AM–5:00 PM Convention Center, Rooms 217-305
- Prayer Room 8:00 AM–6:00 PM Grand Hyatt, Independence
- Mechanical Stratigraphy, Faulting, and Fracturing in Carbonates and Shale: Austin Chalk, Eagle Ford, and Associated Units 8:00 AM–9:30 AM Grand Hyatt, Bowie C
- TLE Editorial Board Meeting 8:00 AM–12:00 PM Grand Hyatt, Republic A
- SEG Chevron Student Leadership Symposium (SLS) 8:30 AM–5:00 PM Grand Hyatt, Lone Star Ballroom, Salon C
- SEG/SEG Foundation Board Meeting 9:00 AM–11:00 AM Grand Hyatt, Republic B
- Books Editorial Board Meeting 9:30 AM–11:00 AM Grand Hyatt, Bowie A
- SEG Book Mart 12:00 PM–8:00 PM Convention Center, Main Lobby
- SEG Council Meeting 1:00 PM–3:00 PM Convention Center, Room 214D
- Interpretation Board Meeting 3:30 PM–5:30 PM Grand Hyatt, Republic A
- Distinguished Lecture Committee 5:00 PM–6:30 PM Grand Hyatt, Texas Ballroom, Salon A
- Icebreaker Reception & Exhibition Hall Opening 6:00 PM–8:00 PM Convention Center, Exhibition Hall
- SEG Avenue 6:00 PM–8:00 PM Convention Center, SEG Avenue Booth 142
- Student Lounge 6:00 PM–8:00 PM Convention Center, SEG Avenue Booth 142
- Foundation Booth 6:00 PM–8:00 PM Convention Center, SEG Avenue Booth 142

**Monday, 16 September**
- Registration & Self-serve Registration 7:30 AM–6:00 PM Convention Center, Main Lobby
- SEG Book Mart 7:30 AM–6:00 PM Convention Center, Main Lobby
- SEG Opening Session & Presidential Address 8:30 AM–10:00 AM Convention Center, Stars at Night Ballroom, B1
- Prayer Room 8:00 AM–6:00 PM Grand Hyatt, Independence
- Geophysics Associate Editors Meeting 10:00 AM–11:30 AM Grand Hyatt, Texas Ballroom, Salon A
- Exhibition Hall 10:00 AM–6:00 PM Convention Center, Exhibition Hall
- SEG Avenue 10:00 AM–6:00 PM Convention Center, SEG Avenue Booth 142
- Student Lounge 10:00 AM–6:00 PM Convention Center, SEG Avenue Booth 142
- Foundation Booth 10:00 AM–6:00 PM Convention Center, SEG Avenue Booth 142
- Business of Applied Geophysics Plenary Session: Challenges and Solutions in Developing Resource Plays 10:15 AM–12:00 PM Convention Center, Stars at Night Ballroom, B1
- Audit Committee 12:30 PM–2:00 PM Grand Hyatt, Republic C

*NOTE: Events and room locations are subject to change.*
<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEG EVOLVE</td>
<td>1:30 PM–5:30 PM</td>
<td>Convention Center, Room 225D</td>
</tr>
<tr>
<td>Business of Applied Geophysics Plenary Session: Putting Diversity to Work</td>
<td>1:45 PM–4:50 PM</td>
<td>Convention Center, Stars at Night Ballroom, B1</td>
</tr>
<tr>
<td>Technical Program Oral Presentations</td>
<td>1:50 PM–5:10 PM</td>
<td>Convention Center, Rooms 214–305</td>
</tr>
<tr>
<td>Technical Program Poster Presentations</td>
<td>1:50 PM–4:20 PM</td>
<td>Convention Center, Exhibition Hall 1</td>
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<tr>
<td>Committee on Nominations</td>
<td>2:00 PM–3:00 PM</td>
<td>Grand Hyatt, Goliad</td>
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<tr>
<td>Challenge Bowl Finals</td>
<td>2:00 PM–4:00 PM</td>
<td>Grand Hyatt, Lone Star Ballroom, Salon A</td>
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<tr>
<td>JAWS Session (Juice A Winning Start-up)</td>
<td>3:30 PM–5:00 PM</td>
<td>Convention Center, Stars at Night Ballroom, B 2&amp;3</td>
</tr>
<tr>
<td>Continuing Education Committee</td>
<td>2:30 PM–4:00 PM</td>
<td>Grand Hyatt, Republic C</td>
</tr>
<tr>
<td>DISC Committee</td>
<td>4:00 PM–5:30 PM</td>
<td>Grand Hyatt, Republic C</td>
</tr>
<tr>
<td>International Reception</td>
<td>4:00 PM–5:30 PM</td>
<td>Convention Center, SEG Avenue, Booth 142</td>
</tr>
<tr>
<td>Student Speed Mentoring</td>
<td>4:00 PM–6:00 PM</td>
<td>Grand Hyatt, Lone Star Ballroom, Salon B</td>
</tr>
<tr>
<td>9th Annual Networking Reception of the SEG Women’s Network Committee</td>
<td>6:00 PM–8:00 PM</td>
<td>Convention Center, Room 220</td>
</tr>
<tr>
<td>Geoscientists Without Borders™ Reception</td>
<td>6:00 PM–7:00 PM</td>
<td>Grand Hyatt, Republic AB</td>
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<tr>
<td><strong>Tuesday, 17 September</strong></td>
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<tr>
<td>2019-2020 Committee Chair Breakfast (Invitation Only)</td>
<td>7:30 AM–9:30 AM</td>
<td>Grand Hyatt, Bowie</td>
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<tr>
<td>Registration &amp; Self-serve Registration</td>
<td>7:30 AM–6:00 PM</td>
<td>Convention Center, Main Lobby</td>
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<tr>
<td>SEG Book Mart</td>
<td>7:30 AM–6:00 PM</td>
<td>Convention Center, Main Lobby</td>
</tr>
<tr>
<td>SEAM Board Meeting</td>
<td>8:00 AM–10:00 AM</td>
<td>Grand Hyatt, Republic B</td>
</tr>
<tr>
<td>Prayer Room</td>
<td>8:00 AM–6:00 PM</td>
<td>Grand Hyatt, Independence</td>
</tr>
<tr>
<td>Technical Program Oral Presentations</td>
<td>8:30 AM–5:10 PM</td>
<td>Convention Center, Rooms 214–305</td>
</tr>
<tr>
<td>Business of Applied Geophysics Plenary Session: Digital Transformation in Petroleum Geophysics: What Impacts Are We Seeing?</td>
<td>9:00 AM–11:00 AM</td>
<td>Convention Center, Stars at Night Ballroom, B1</td>
</tr>
<tr>
<td>Applied Science Education Program</td>
<td>9:00 AM–12:00 PM</td>
<td>Convention Center, Stars at Night Ballroom, B4</td>
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<tr>
<td>SEG EVOLVE</td>
<td>9:00 AM–1:00 PM</td>
<td>Convention Center, Room 225D</td>
</tr>
<tr>
<td>Exhibition Hall</td>
<td>9:00 AM–6:00 PM</td>
<td>Convention Center, Exhibition Hall</td>
</tr>
<tr>
<td>SEG Avenue</td>
<td>9:00 AM–6:00 PM</td>
<td>Convention Center, SEG Avenue Booth 142</td>
</tr>
<tr>
<td>Student Lounge</td>
<td>9:00 AM–6:00 PM</td>
<td>Convention Center, SEG Avenue Booth 142</td>
</tr>
<tr>
<td>Foundation Booth</td>
<td>9:00 AM–6:00 PM</td>
<td>Convention Center, SEG Avenue Booth 142</td>
</tr>
<tr>
<td>Technical Program Poster Presentations</td>
<td>9:20 AM–4:20 PM</td>
<td>Convention Center, Exhibition Hall 1</td>
</tr>
<tr>
<td>Development &amp; Production Lunch</td>
<td>11:30 AM–1:00 PM</td>
<td>Convention Center, Room 215</td>
</tr>
<tr>
<td>Latin American and Caribbean Lunch</td>
<td>11:30 AM–1:00 PM</td>
<td>Convention Center, Room 220</td>
</tr>
<tr>
<td>Near Surface Panel Discussion: Solving Near-Surface Problems with Geophysics and Engineering</td>
<td>12:05 PM–1:05 PM</td>
<td>Convention Center, Room 221A</td>
</tr>
<tr>
<td>Technical Standards Committee</td>
<td>1:00 PM–5:00 PM</td>
<td>Grand Hyatt, Republic C</td>
</tr>
<tr>
<td>AGU-SEG Collaboration Committee</td>
<td>1:30 PM–2:30 PM</td>
<td>Grand Hyatt, Bowie A</td>
</tr>
<tr>
<td>Business of Applied Geophysics Plenary Session: Latin America and the Caribbean: Business Opportunities and Challenges</td>
<td>1:50 PM–5:25 PM</td>
<td>Convention Center, Stars at Night Ballroom, B1</td>
</tr>
<tr>
<td>Emerging Professionals Committee</td>
<td>4:00 PM–4:30 PM</td>
<td>Convention Center, 3rd Floor Terrace</td>
</tr>
<tr>
<td>Finance Committee</td>
<td>4:00 PM–6:00 PM</td>
<td>Grand Hyatt, Republic A</td>
</tr>
<tr>
<td>Emerging Professionals (EPIC) Happy Hour</td>
<td>4:30 PM–6:30 PM</td>
<td>Convention Center, 3rd Floor Terrace</td>
</tr>
<tr>
<td>Gravity &amp; Magnetics Committee</td>
<td>5:30 PM–7:00 PM</td>
<td>Grand Hyatt, Republic B</td>
</tr>
<tr>
<td>Honors &amp; Awards Ceremony</td>
<td>6:30 PM–7:30 PM</td>
<td>Grand Hyatt, Lone Star Ballroom, Salon AB</td>
</tr>
<tr>
<td>Near-Surface Geophysics Technical Section Reception</td>
<td>7:00 PM–10:00 PM</td>
<td>River Walk, Iron Cactus Restaurant, 200 River Walk, Suite 100</td>
</tr>
<tr>
<td>Presidential Jam</td>
<td>9:00 PM–12:00 AM</td>
<td>Grand Hyatt, Texas Ballroom, Salon AB</td>
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### EVENT SCHEDULE (CONTINUED)

**Wednesday, 18 September**

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<tr>
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<th>Time</th>
<th>Location</th>
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<tr>
<td>Registration &amp; Self-serve Registration</td>
<td>7:30 AM–5:30 PM</td>
<td>Convention Center, Main Lobby</td>
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<tr>
<td>SEG Book Mart</td>
<td>7:30 AM–6:00 PM</td>
<td>Convention Center, Main Lobby</td>
</tr>
<tr>
<td>Members-only Breakfast: Meet, Eat, and Greet</td>
<td>8:00 AM–10:00 AM</td>
<td>Convention Center, Room 220</td>
</tr>
<tr>
<td>Prayer Room</td>
<td>8:00 AM–6:00 PM</td>
<td>Grand Hyatt, Independence</td>
</tr>
<tr>
<td>Technical Program Oral Presentations</td>
<td>8:30 AM–5:10 PM</td>
<td>Convention Center, Rooms 214–305</td>
</tr>
<tr>
<td><strong>Business of Applied Geophysics Plenary Session: Improving the Business Model of Land Seismic and Processing in the US: Technology, Quality, Economics</strong></td>
<td>8:30 AM–10:35 AM</td>
<td>Convention Center, Stars at Night Ballroom, B1</td>
</tr>
<tr>
<td>Exhibition Hall</td>
<td>9:00 AM–4:30 PM</td>
<td>Convention Center, Exhibition Hall</td>
</tr>
<tr>
<td>SEG Avenue</td>
<td>9:00 AM–4:30 PM</td>
<td>Convention Center, SEG Avenue Booth 142</td>
</tr>
<tr>
<td>Student Lounge</td>
<td>9:00 AM–4:30 PM</td>
<td>Convention Center, SEG Avenue Booth 142</td>
</tr>
<tr>
<td>Foundation Booth</td>
<td>9:00 AM–4:30 PM</td>
<td>Convention Center, SEG Avenue Booth 142</td>
</tr>
<tr>
<td>Technical Program Poster Presentations</td>
<td>9:20 AM–4:20 PM</td>
<td>Convention Center, Exhibition Hall 1</td>
</tr>
<tr>
<td>Exhibitor Meeting</td>
<td>10:00 AM–11:30 AM</td>
<td>Convention Center, Room 223</td>
</tr>
<tr>
<td>Delegate Lunch</td>
<td>12:00 PM–1:00 PM</td>
<td>Convention Center, Exhibition Hall</td>
</tr>
<tr>
<td>China VIP Meeting</td>
<td>1:30 PM–3:00 PM</td>
<td>Grand Hyatt, Bowie B</td>
</tr>
<tr>
<td>SEG-NGWA Collaboration Committee</td>
<td>2:00 PM–3:00 PM</td>
<td>Grand Hyatt, Bowie C</td>
</tr>
<tr>
<td>Bylaws Committee</td>
<td>3:30 PM–4:30 PM</td>
<td>Grand Hyatt, Bowie A</td>
</tr>
<tr>
<td>EAGE/SEG Collaboration Committee</td>
<td>4:00 PM–5:00 PM</td>
<td>Grand Hyatt, Bowie C</td>
</tr>
<tr>
<td>Mining Committee</td>
<td>5:30 PM–6:30 PM</td>
<td>Grand Hyatt, Bowie A</td>
</tr>
<tr>
<td>Wrap-Up Party: Latin Nights</td>
<td>5:30 PM–8:30 PM</td>
<td>Convention Center, The LDR &amp; Grotto</td>
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**Thursday, 19 September**

<table>
<thead>
<tr>
<th>Event</th>
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<tr>
<td>Registration &amp; Self-serve Registration</td>
<td>7:30 AM–4:00 PM</td>
<td>Convention Center, Main Lobby</td>
</tr>
<tr>
<td>SEG Book Mart</td>
<td>7:30 AM–6:00 PM</td>
<td>Convention Center, Main Lobby</td>
</tr>
<tr>
<td>Postconvention Workshops</td>
<td>8:30 AM–5:00 PM</td>
<td>Convention Center, Rooms 221–305</td>
</tr>
<tr>
<td>Near Surface Summit: Near-Surface Geophysics for Archaeological and Forensic Applications</td>
<td>8:30 AM–5:00 PM</td>
<td>Convention Center, Rooms 217D</td>
</tr>
<tr>
<td>Annual Meeting Steering Committee</td>
<td>9:00 AM–11:00 AM</td>
<td>Grand Hyatt, Bowie C</td>
</tr>
<tr>
<td>SEG Board of Directors Meeting</td>
<td>1:00 PM–3:00 PM</td>
<td>Grand Hyatt, Bowie B</td>
</tr>
<tr>
<td>Research Committee Meeting</td>
<td>5:15 PM–7:15 PM</td>
<td>Grand Hyatt, Bowie B/C</td>
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**Friday, 20 September**

<table>
<thead>
<tr>
<th>Event</th>
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<tr>
<td>SEG Book Mart</td>
<td>7:30 AM–1:00 PM</td>
<td>Convention Center, Main Lobby</td>
</tr>
<tr>
<td>Postconvention Workshops</td>
<td>8:30 AM–12:00 PM</td>
<td>Convention Center, Rooms 221–305</td>
</tr>
</tbody>
</table>

Riverboat shuttle hours and location of pickup will be posted at the SEG registration desk and every hotel will be given a copy of the schedule at the bell desk. Look for the SEG sign on the boats.
### SEG COMMITTEE/BOARD MEETINGS

#### Sunday, 15 September

<table>
<thead>
<tr>
<th>Time</th>
<th>Committee/Meeting</th>
<th>Location</th>
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<tbody>
<tr>
<td>8:00 AM–12:00 PM</td>
<td>TLE Editorial Board</td>
<td>Grand Hyatt, Republic A</td>
</tr>
<tr>
<td>9:00 AM–11:00 AM</td>
<td>SEG/SEGF Board</td>
<td>Grand Hyatt, Republic B</td>
</tr>
<tr>
<td>9:30 AM–11:00 AM</td>
<td>Books Editorial Board</td>
<td>Grand Hyatt, Bowie A</td>
</tr>
<tr>
<td>5:00 PM–5:30 PM</td>
<td>Interpretation Editorial Board</td>
<td>Grand Hyatt, Republic A</td>
</tr>
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#### Monday, 16 September

<table>
<thead>
<tr>
<th>Time</th>
<th>Committee/Meeting</th>
<th>Location</th>
</tr>
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<tbody>
<tr>
<td>10:00 AM–11:30 AM</td>
<td>Geophysics Associate Editors Meeting</td>
<td>Grand Hyatt, Texas Ballroom, Salon A</td>
</tr>
<tr>
<td>1:30 PM–3:30 PM</td>
<td>Audit Committee</td>
<td>Grand Hyatt, Republic C</td>
</tr>
<tr>
<td>2:00 PM–3:00 PM</td>
<td>Committee on Nominations</td>
<td>Grand Hyatt, Goliad</td>
</tr>
<tr>
<td>2:30 PM–4:00 PM</td>
<td>CE Committee</td>
<td>Grand Hyatt, Republic C</td>
</tr>
<tr>
<td>4:00 PM–5:30 PM</td>
<td>DISC Committee</td>
<td>Grand Hyatt, Republic C</td>
</tr>
<tr>
<td>5:00 PM–6:30 PM</td>
<td>Distinguished Lecture Committee</td>
<td>Grand Hyatt, Texas Ballroom, Salon A</td>
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#### Tuesday, 17 September

<table>
<thead>
<tr>
<th>Time</th>
<th>Committee/Meeting</th>
<th>Location</th>
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<tbody>
<tr>
<td>8:00 AM–10:00 AM</td>
<td>SEAM Board</td>
<td>Grand Hyatt, Republic B</td>
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<tr>
<td>1:00 PM–5:00 PM</td>
<td>Technical Standards Committee</td>
<td>Grand Hyatt, Republic C</td>
</tr>
<tr>
<td>1:30 PM–2:30 PM</td>
<td>AGU-SEG Collaboration Committee</td>
<td>Grand Hyatt, Bowie A</td>
</tr>
<tr>
<td>4:00 PM–4:30 PM</td>
<td>Emerging Professionals International Committee</td>
<td>Convention Center, 3rd Floor Terrace</td>
</tr>
<tr>
<td>4:00 PM–5:00 PM</td>
<td>Finance Committee</td>
<td>Grand Hyatt, Republic A</td>
</tr>
<tr>
<td>5:30 PM–7:00 PM</td>
<td>Gravity &amp; Magnetics Committee</td>
<td>Grand Hyatt, Republic B</td>
</tr>
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</table>

#### Wednesday, 18 September

<table>
<thead>
<tr>
<th>Time</th>
<th>Committee/Meeting</th>
<th>Location</th>
</tr>
</thead>
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<tr>
<td>2:00 PM–3:00 PM</td>
<td>SEG-NGWA Collaboration Committee</td>
<td>Grand Hyatt, Bowie C</td>
</tr>
<tr>
<td>3:30 PM–4:30 PM</td>
<td>Bylaws Committee (TBD)</td>
<td>Grand Hyatt, Bowie A</td>
</tr>
<tr>
<td>4:00 PM–5:00 PM</td>
<td>EAGE/SEG Collaboration Committee</td>
<td>Grand Hyatt, Bowie C</td>
</tr>
<tr>
<td>5:30 PM–6:30 PM</td>
<td>Mining Committee</td>
<td>Grand Hyatt, Bowie A</td>
</tr>
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#### Thursday, 19 September

<table>
<thead>
<tr>
<th>Time</th>
<th>Committee/Meeting</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 AM–11:00 AM</td>
<td>Annual Meeting Steering Committee Wrap-Up</td>
<td>Grand Hyatt, Bowie C</td>
</tr>
<tr>
<td>5:15 PM–7:15 PM</td>
<td>Research Committee</td>
<td>Grand Hyatt, Bowie B/C</td>
</tr>
</tbody>
</table>

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**New!**

**Numerical Modeling of Seismic Responses from Fractured Reservoirs by the Grid-characteristic Method**

By Vladimir Leviant, Igor Kvasov, and Igor Petrov

Book: SEG Members US$82, list US$149  
E-book: SEG Members US$70, list US$127  
Published 2019, 256 pages, hardcover, catalog #138A-19

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ABOUT THE HENRY B. GONZÁLEZ CONVENTION CENTER

The facility is the central component of the city’s successful convention industry. The Center, named for the late US Congressman Henry B. González, hosts more than 300 events each year with more than 750,000 convention delegates from around the world.

The original convention center was built as part of HemisFair ’68 by a joint venture of two general contractors Darragh & Lyda Inc. of San Antonio, Texas and H. A. Lott Inc. of Houston, Texas. The Henry B. González Convention Center has significantly expanded since 1968 and today boasts 514,000 square feet of contiguous exhibit space with 86,500 square feet of column-free multipurpose space, more than 70 meeting rooms, and 2 ballrooms which include the largest ballroom in Texas. The Henry B. González Convention Center is also home to the Lila Cockrell Theatre, a performing arts venue.

AUDIO/VIDEO/PHOTOGRAPHS
Please note that audio recording, video recording, and photographing any portion of the 2019 SEG International Exposition and 89th Annual Meeting is strictly prohibited.

POLICY ON CHILD ATTENDEES
Childcare will not be provided at the 2019 SEG International Exhibition & 89th Annual Meeting. Children under the age of 16 are not allowed in the exhibition hall during setup or tear down. Only children 13 years or older will be allowed to attend the exhibitions during regular exhibition hours; however, they must be registered for the event at the standard visitor rate of US$275. Children under the age of 13 will not be allowed into any activities unless they are young enough to be confined to a stroller, backpack, or front carrier. Children are not permitted in the technical program sessions.

FIRST AID STATION
First Aid is available during official event hours and is located on the street level of the Henry B. González Convention Center inside Exhibition Hall 1, Booth #1013. The room will be staffed with an Emergency Medical Technician (EMT) to assist you with any medical needs.

CHILD NURSING ROOM
Located in Room 1212, street level, of the Henry B. González Convention Center, SEG will provide a quiet, private nursing room during official event hours. The room is located to the west of main registration and Hall 3.

CONSENT TO USE PHOTOGRAPHIC IMAGES
Registration, attendance, and/or participation in SEG meetings and/or SEG-sanctioned activities constitutes agreement by the registrant to SEG’s use and distribution (both now and in the future) of the registrant’s or attendee’s image and/or voice in recordings of such events and activities.

DRESS CODE
Appropriate dress while attending the Annual Meeting, including technical sessions, the exhibition hall, and ancillary events, is business or business casual.

EDUCATION OPPORTUNITIES
Sessions, workshops, and continuing education information can be found on the website at seg.org/am/education and the SEG19 Mobile App.

EXHIBITION FLOOR PLAN

EXHIBITION HOURS
<table>
<thead>
<tr>
<th>Date</th>
<th>Sunday, 15 September</th>
<th>Monday, 16 September</th>
<th>Tuesday, 17 September</th>
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<td>9:00 AM–4:30 PM</td>
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REGISTRATION HOURS
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<th>Friday, 13 September</th>
<th>Saturday, 14 September</th>
<th>Sunday, 15 September</th>
<th>Monday, 16 September</th>
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<td></td>
<td>12:00 PM–5:00 PM</td>
<td>7:30 AM–5:00 PM</td>
<td>7:30 AM–8:00 PM</td>
<td>7:30 AM–6:00 PM</td>
<td>7:30 AM–6:00 PM</td>
<td>7:30 AM–5:30 PM</td>
<td>7:30 AM–4:00 PM</td>
</tr>
</tbody>
</table>

CONVENTION CENTER FOOD SERVICES
All food and beverage served inside the convention center is to be provided exclusively by the convention center caterer, The RK Culinary Group. Many food concession options are available inside the convention center Monday through Wednesday and limited options are available Saturday, Sunday, Thursday and Friday. Some options available are the Market Café in the main lobby, the Broken Crust located west of main registration, El Puente Café located in the west lobby, as well as concessions inside the exhibition hall on Wednesday.

LOST AND FOUND
Lose something while in a technical session? Find something in registration that someone dropped? Please visit the lost and found located in the Constituent Engagement Booth in the convention center main lobby to retrieve or turn in lost and found items.

WIRELESS INTERNET
Free wi-fi is available in the main lobby and west lobby.

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Need to mail, ship, copy, or print something while at the SEG Annual Meeting? No problem! The UPS Store at the Henry B. González Convention Center (adjacent to the main entrance) can help with a variety of services including notary services, faxing, and document shredding. Phone: +1-210-258-8950.
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Need a scooter to get around the exhibition hall? Will you need a wheelchair due to a broken leg? Contact Tom’s Scooter Rentals and they will deliver directly to your hotel or the Henry B. González Convention Center.
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Refund requests were due in writing to registration@seg.org prior to 15 August 2019. SEG will not provide refunds, including those due to visa denial, after the published deadline.

SEG will not accept responsibility of any other costs associated with under-subscribed event cancellations (i.e. airfare, hotel deposits, etc.)

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Join the excitement before, during, and after the meeting! Connect with other attendees, speakers, and media by following updates on seg.org/am. Add #SEG19 to your ideas, photos, and posts and look for regular updates on Twitter, Facebook, LinkedIn, and Instagram.

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- Integrate with social media
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Simply visit the friendly SEG Constituent Engagement staff at their booth near registration to answer questions about member benefits and discounts, to update your member profile, or to pick up your exclusive members-only gift!

MEET, EAT, AND GREET MEMBERS-ONLY BREAKFAST

Wednesday, 8:00 AM–10:00 AM
Convention Center, Room 220

All SEG members are invited to join the 2019 Members-only Breakfast: Meet, Eat, and Greet. This is a great opportunity for members to meet the leaders of SEG and learn more about getting involved in the organization. Full breakfast with mimosas will be provided. Please arrive early, space is limited. (Must be registered for the SEG Annual Meeting.)

2019 SEG CORPORATE MEMBERS

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OVATION DATA SERVICES, INC.
SINOPEC OFFSHORE OILFIELD SERVICES COMPANY
“I attend the Annual Meeting each year because of the professional networking and the excellent technical program where I’m able to keep informed about the new technologies in the oil and gas industry.”

Azie Sophia Aziz
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Audit Committee ..................................................................................... Bob Brook
Books Editorial Board .............................................................................. Mauricio Sacchi
Bylaws Committee ................................................................................... Joe Reilly
Committee for Passive Seismology ............................................................ Ulrich Zimmer
Committee on Nominations ...................................................................... Ruben Martinez
Committee on University & Student Programs ........................................... Joan Marie Blanco
Compensation Committee ........................................................................ Robert Stewart
Continuing Education Committee ............................................................. William Harbert
Development & Production Committee .................................................... Andrew Royle
Distinguished Lecturer Committee .......................................................... Jerry Schuster
EAGE/SEG Collaboration Committee ....................................................... John Bradford & Brian Russell
Emerging Professionals International Committee ...................................... Johannes Duoma
Exhibitors Committee ............................................................................... Dawn van Zeelst
EVOLVE Technical Committee ................................................................. Olga Nedorub
Field Camps Committee ........................................................................... Dylan Mikesell
Finance Committee ................................................................................... Lee Bell
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Wiki Committee ....................................................................................... Karl Schleicher
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OTC Brasil Program Committee ................................................................ Marcilio Matos & Manuel Peiro
URTeC ........................................................................................................ Frank Brown

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SEG Real Estate Task Force ....................................................................... Ken Tubman

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Eurasia Advisory Committee ................................................................... Aleksandra Khramtseva
Europe Advisory Committee .................................................................... Adriana Ramirez
Middle East Advisory Committee ............................................................. Mohammed Al-Ghamdi & Mohammed Badri

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Thank you
to all Board chairs, committee chairs, committee members, and SEG representatives for their exemplary efforts through the past year.
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Visit with SEG authors, have your new books signed, check out the latest SEG merchandise, and shop the many titles on sale at the SEG Book Mart, located in the main lobby by registration. Hours are:

- Sunday, 12:00 PM–8:00 PM
- Monday–Thursday, 7:30 AM–6:00 PM
- Friday, 7:30 AM–1:00 PM

You will love expanding your personal library, with a new SEG book, including *Understanding Signals: Basic waveform analysis from a geophysical perspective* by Michael Burianyk.
As director of the USGS, Dr. Reilly is responsible for leading the nation’s largest water, earth, biological science, and civilian mapping agency. Prior to joining the USGS, he served US and allied militaries as a subject-matter expert on space operations, and as a technical advisor supporting the National Security Space Institute of the US Air Force. He served with the US Navy as a reserve engineering duty officer. He’s held management positions in academia as well as at TAEUS Corporation and PhotoStencil Corporation. As an astronaut at NASA, he had a distinguished 13-year career where he flew three spaceflight missions and conducted five spacewalks totaling more than 856 hours in space.

Prior to NASA, he served as chief geologist at Enserch Exploration, Inc., working on projects around the world. He has been active in geological research in Antarctica and on the continental slope of the Gulf of Mexico. He received his bachelor’s, master’s, and doctorate degrees in geosciences from the University of Texas at Dallas.

2018–2019 SEG President Dr. Robert Stewart will deliver the Presidential Address following Dr. Reilly’s keynote address. Dr. Stewart will update the SEG delegates on the state of SEG and the future of the Society.
CHALLENGES AND SOLUTIONS IN DEVELOPING RESOURCE PLAYS
Monday, 10:15 AM–12:00 PM
Organizers: Kevin Woller and Glenn Winters

Speakers will compare and contrast resource play development with conventional play development. Problems and solutions unique to resource plays will be reviewed that may include topics such as well permitting, frac water sourcing, water disposal, natural gas production, pipeline constraints, investment and financing considerations, hydraulic fracturing techniques, technical challenges and goals, technology gaps, regulations, and personnel needs.

Glenn Winters, Geophysical Consultant, SeisWare Software Representative; Kevin Woller, Consultant

Opening Remarks/Introduction
10:15 AM–10:20 AM

Klaas Koster, Chief of Geophysics, Oxy

Characterization of Unconventional Reservoirs Unlocked
10:20 AM–10:40 AM

Patrick Rutty, Drilling Info

Geophysics: A Key to Improving Predictive Multivariate Models
10:40 AM–11:00 AM

Andrew Deighan, General Manager Exploration, Chevron North America Exploration and Production Company

Chevron in the Permian, Our Legacy and Future
11:00 AM–11:20 AM

Bryan Shaw, TxOGA

Regulatory Challenges and Opportunities in Play Development – Pipelines, water, methane…
11:20 AM–11:40 AM

Open Panel Discussion with Q/A
11:40 AM–12:00 PM

PUTTING DIVERSITY TO WORK
Monday, 1:45 PM–4:50 PM
Organizers: Mike Loudin and Maitri Erwin

Until recently, diversity and inclusion have been narrowly viewed in terms of increasing the participation of women and underrepresented minorities in the workforce. As the demographics of the workforce change, so does its global nature, as well as the imperative to integrate between many interrelated disciplines. Thus, members of the workforce often find themselves in a profoundly diverse working environment. This is a challenge but also a resource, and this forum will examine how some organizations thrive in this brave new world.

Mike Loudin, Chair, SEG Foundation; Maitri Erwin, Exploration Manager, CNOOC International

Opening Remarks/Introduction
1:45 PM–1:50 PM

Allyson Anderson Book, Executive Director, American Geosciences Institute

By the Numbers: Diversity and Inclusion in the Geosciences
1:50 PM–2:15 PM

Fred Dyen, Human Resources Director, Schlumberger

Diversity – Is it possible and does it have an impact?
2:15 PM–2:40 PM

Hendratta Ali, Chair, SEG Women’s Network

Inclusion Enhances Diversity: Focusing on Inclusion in Academia Can Increase Retention, Scholarship & More
2:40 PM–3:05 PM

Stacey Weltmer, Geology Discipline Manager, ExxonMobil

Inclusion and Diversity: Mirroring the Natural World
3:05 PM–3:30 PM

Eric Riggs, Associate Professor, Department of Geology and Geophysics, Texas A&M University

Models of Diversity in Geoscience: Supporting a Diverse Workplace
3:30 PM–3:55 PM

Ellen Vernotzy, General Manager Frontier Exploration and Appraisal; Africa/Latin America, Chevron

Propelling Yourself and the Business Forward – Untapping the Human Resource
3:55 PM–4:20 PM

Open Panel Discussion with Q/A
4:20 PM–4:50 PM
DIGITAL TRANSFORMATION IN PETROLEUM GEOPHYSICS – WHAT IMPACTS ARE WE SEEING?
Tuesday, 9:00 AM–11:00 AM
Organizers: Dimitri Bevc and John Toldi

A touted characteristic of digital transformation is that it is agile: that change is rapid and disruptive in a positive sense. As an industry, we’ve now been solidly down this path for a couple of years. Last year at SEG we had a BAG plenary session that was visionary and forward looking, describing and discussing the business opportunities and challenges, and how the business can transform. For the most part, the industry has bought into this vision and is executing on digital transformation, so this year’s session will ask “what do we have to show for it?” How have the business practices of geophysics been transformed, and what business impacts are we seeing? Has the form and degree of impact varied by business segment, e.g. deepwater conventional vs. unconventional?

PANEL DISCUSSION
Biondo Biondi, Professor of Geophysics, Stanford
Sverre Brandsberg Dahl, Director of Technology and Research – Azure Global Energy Team, Microsoft
Xiaojun Huang, Senior Digital Transformation Advisor, ExxonMobil
Scott Neal, Manager Exploration and Applied Reservoir Management, Mid-Continent Business Unit, Chevron North America E&P, Chevron
Kenton Prindle, Lead Geophysical Solutions ML and HPC Engineer, Google

LATIN AMERICA AND THE CARIBBEAN: BUSINESS OPPORTUNITIES AND CHALLENGES
Tuesday, 1:50 PM–5:25 PM
Organizers: Sergio Chavez-Perez and Ana Curcio

The aim of this session is to listen to, and interact with, key representatives and international leaders providing overviews on industry insights, current challenges, latest developments, commercial opportunities, and networking activity related to oil, gas, and mineral exploration activities in Latin America and the Caribbean region. Emphasis will be on Argentina, Belize, Bolivia, Brazil, Colombia, Mexico, and Venezuela, and an overview of the whole region.

Sergio Chávez-Pérez, Research Geophysicist, Instituto Mexicano del Petróleo; Ana Curcio, Geophysical Advisor, PROINGEO SA; and Paul Cunningham, Managing Partner, Amigos Energy Advisors, L.L.C.

Opening Remarks/Introduction
1:50 PM–2:05 PM
Luis A. Vernengo, Head of Geophysics, PanAmerican Energy
New Seismic Ventures in Argentina O&G Industry: Integration in a Virtuous Circle
2:05 PM–2:25 PM
Susan Morrice, Chairperson, Belize Natural Energy
Belize... the most unique energy discovery in the world!
2:25 PM–2:45 PM
Tomas Zapata, Director of Exploration Assets Americas, Repsol
Pending Title
2:45 PM–3:05 PM
Luís Henrique Amaral, Gerente de Tecnología Geofísica, Petrobras
Geophysical Challenges and Opportunities in Offshore Brazil
3:05 PM–3:25 PM
Héctor Alfonso, Senior Geophysicist Adviser, Ecopetrol
Seismic Imaging over Foothills: Challenges and Solutions
3:25 PM–3:45 PM
Anglia Sweet, Senior Technical Manager, Petronas Mexico
Petronas Mexico: Deepwater Activities
3:45 PM–4:05 PM
John Conlon, Consultant, INEXS
Future Potential for the Oil, Gas, Petrochemical, and Refining Industries in Venezuela
4:05 PM–4:25 PM

Open Panel Discussion with Q/A
4:25 PM–5:25 PM

Join us for a series of informative plenary sessions focused on the business impact of applied geophysics for the oil and gas industry. These plenary sessions bring together leaders from operating companies, governments, service providers, educators, and consultants who will discuss the business opportunities and challenges of the economic application of geophysics in the oil and gas business.
IMPROVING THE BUSINESS MODEL OF LAND SEISMIC AND PROCESSING IN THE US; TECHNOLOGY, QUALITY, ECONOMICS
Wednesday, 8:30 AM–10:35 AM

Organizers: David Monk and Joseph Reilly

Recent worldwide advances in land acquisition and processing technology have resulted in a step change in data quality and productivity in those regions where these practices are being aggressively applied. In mainland USA the challenges of market conditions, environment, culture, asset type, funding, and transfer of knowledge have resulted in a relatively slower pace of adoption. This panel will present and discuss examples of worldwide successes of higher effort/advanced technology programs. They will then explore business models that could be supported in the US market, as well as describe and outline other barriers that need to be overcome in order for the industry to move forward technically while providing positive cash flow for the suppliers.

David Monk, Director of Geophysics and Distinguished Advisor, Apache Corp.; Joseph Reilly, Chief Geoscientist, ExxonMobil Upstream Research Company

Opening Remarks/Introduction
8:30 AM–8:35 AM

Saad Al-Akeel, CEO, ARGAS

Land Seismic Acquisition: Denser, Faster, Better: Middle East Experience
8:35 AM–8:45 AM

Lixin Zhai, President of BGP International

Perspectives for Future Land Seismic
8:45 AM–8:55 AM

Steve Jumper, Chairman of the Board, President & CEO, Dawson

Changing Business of Seismic Acquisition in the US
8:55 AM–9:05 AM

Peter Jones, Region Director, North America Land, WesternGeco

The Sustainability of the Multi-client Seismic Industry
9:05 AM–9:15 AM

Chengbo Li, ConocoPhillips

Compressive Seismic Imaging on Land: Applications and Challenges
9:15 AM–9:25 AM

Scott Michell, Director of Geophysics, BP

Wide Azimuth/High Density is the Way but How Do We Pay?
9:25 AM–9:35 AM

Open Panel Discussion with Q/A
9:35 AM–10:35 AM

THE CHANGING BUSINESS CLIMATE OF MARINE GEOPHYSICS: ROADMAP TO THE FUTURE
Wednesday, 1:50 PM–3:55 PM

Organizers: Bill Abriel and Joseph Reilly

Recent events in the marine seismic industry have resulted in key providers moving to an “asset light” model, the global fleet of seismic streamer vessels being reduced and consolidated with fewer providers, and a historically low rate of equipment refresh. At the same time, the node market is growing with demand likely to exceed current vendor capacity and equipment supply. Finally, the process for permitting these surveys is becoming increasingly complex. The panel will present and discuss the substantial changes in global marine geophysics, trends, and consequences of equipment supply and availability, international government policy, regulating, and permitting.

Bill Abriel, CEO Orinda Geophysical; Joseph Reilly, Chief Geoscientist, ExxonMobil Upstream Research Company

Opening Remarks/Introduction
1:50 PM–1:55 PM

Duncan Eley, CEO, Polarcus

Explore Smarter: The Transforming Marine Seismic Industry
1:55 PM–2:05 PM

Peter Hooper, CCO, Shearwater GeoServices

What just happened? Learning Lessons for the Future of Seismic
2:05 PM–2:15 PM

Nathan Oliver, EVP Sales & Imaging, PGS

The Advantage of an Integrated Strategy in the Evolving Marine Seismic Landscape
2:15 PM–2:25 PM

Shaohua Zhang, Chief Geophysicist, BGP

Prospects for OBN in the Exploration Phase
2:25 PM–2:35 PM

John Smyth, VP Technical Marketing and Sales, Fairfield Geotechnologies

Scalable OBN Solutions — Revitalizing Mature Basins
2:35 PM–2:45 PM

Paul Williamson, Total

Sustainable Evolution of Seismic Acquisition Technology for a Challenging Environment
2:45 PM–2:55 PM

Open Panel Discussion with Q/A
2:55 PM–3:55 PM
SPECIAL FEATURES AND EVENTS

Expand your horizons, advance the science, and connect with others at these special events.

SEG AVENUE
Convention Center, Exhibition Hall, Booth 142
Sunday, 6:00 PM–8:00 PM
Monday, 10:00 AM–6:00 PM
Tuesday, 9:00 AM–6:00 PM
Wednesday, 9:00 AM–4:30 PM

Take a stroll down SEG Avenue, connect with SEG staff, and discover all the exciting programs and events SEG has to offer. The International Reception will be held here on Monday. Don’t miss it!

Featured areas of SEG Avenue include:

• Global Lounge
• SEG Information
• Rebooking Booth
• SEG Foundation Lounge
• Student Lounge
• Geoscientists Without Borders®
• SEG Sections and Associated Societies
• SEG Near-Surface Geophysics
• SEG Publications

SEG BOOK MART
Convention Center, Main Lobby
Sunday, 12:00 PM–8:00 PM
Monday–Thursday, 7:30 AM–6:00 PM
Friday, 7:30 AM–1:00 PM

The SEG Book Mart, conveniently located in the convention center lobby, is the destination for attendees to find applied geophysics titles and SEG-branded merchandise and apparel.

CONSTITUENT ENGAGEMENT BOOTH
Convention Center, Main Lobby
Sunday–Wednesday
Helpful SEG staff will be available to answer your questions about membership, member benefits, accept dues renewals, and visit with members.

STUDENT LOUNGE
Convention Center, SEG Avenue in Exhibition Hall, Booth 142
Sunday, 6:00 PM–8:00 PM
Monday, 10:00 AM–6:00 PM
Tuesday, 9:00 AM–6:00 PM
Wednesday, 9:00 AM–4:30 PM

The lounge will provide students with an interactive meeting place for networking, relaxing, and recharging while also playing a few friendly games of foosball. Visit the lounge during exhibition hours.

RIVERBOAT TRANSPORTATION NEW!
Monday–Wednesday, 7:00 AM–9:00 AM

Riverboat shuttles will run Monday through Wednesday from most SEG official hotels on the river to the convention center. Riverboat shuttle hours and location of pickup will be posted at the SEG registration desk, and every hotel will have a copy of the schedule at the bell desk. Look for the SEG sign on the boats.

GOLF TOURNAMENT
The Quarry Golf Course
Saturday, 12:00 PM

Back by popular demand, the golf tournament is a great opportunity to network, entertain clients, partners, and have some fun before SEG19 gets under way! The Quarry Golf Course in San Antonio, Texas, home to an award-winning golf course designed by nationally recognized golf course designer Keith Foster, is the setting of this year’s tournament. The Quarry is recognized throughout the country for its unique setting and design. Tournament players will enjoy a boxed lunch upon registration, refreshing beverages, and snacks on the golf course and a casual dinner at the awards banquet at the end of the round. Exciting prizes await for closest-to-the-pin and longest drive and more.

SEG COUNCIL MEETING
Sunday, 1:00 PM–3:00 PM
Convention Center, Room 214D

Members of the 2018–2019 SEG Council will convene to conduct routine business and vote on proposed amendments to the SEG Bylaws. All SEG members are welcome to attend.
ICEBREAKER
Sunday, 6:00 PM–8:00 PM
Convention Center, Exhibition Hall

Kick off SEG19 at the opening of the exhibition hall for a preview of the exciting and interesting booths on display. The evening will begin with some lively entertainment with a local flair and will feature cash bars throughout the halls to quench your thirst.

OPENING SESSION AND PRESIDENTIAL ADDRESS
Monday, 8:30 AM–10:00 AM
Convention Center, Stars at Night Ballroom B1

Dr. James Reilly, Director of the US Geological Survey will deliver the keynote address, “The Evolution of Unconventional Play Analysis at the USGS” at the SEG19 Opening Session. SEG President, Dr. Robert Stewart, will deliver the Presidential Address following the keynote to update SEG Members on the state of the Society.

SEG EVOLVE – DEVELOPING THE FEARLESS EXPLORERS OF THE FUTURE
Monday, 1:30 PM–5:30 PM
Tuesday, 9:00 AM–1:00 PM
Convention Center, Room 225D

The two-day EVOLVE program offers students direct experience in conducting multidisciplinary subsurface integration projects using real-world data and modern software. Join 15 international teams as they present their best investment opportunity and go in-depth during their poster sessions; and learn how you can apply as a team or mentor in 2020. Free and open to the public.

JAWS (JUICE A WINNING STARTUP)
Monday, 3:30 PM–5:00 PM
Convention Center, Stars at Night Ballroom B2 & B3

JAWS is a Shark Tank-inspired entrepreneurial pitch contest. This is a must-attend event for anyone thinking of going into business for themselves. How do you start a company? Do you dream of being your own boss? Do you have an invention that will revolutionize the oilfield? The panel of experts will listen to business pitches of aspiring entrepreneurs and compete for exposure to the SEG Community. Event is open to all delegates. The expert panel includes:
- Erika Anderson, Attorney, Erika Anderson Law LLP
- Janette Conradson, CEO, LRH Energy Capital
- Kemal Farid, Managing Director, Blue Vine Ventures
- James W. Rector III, Professor and Entrepreneur, University of California at Berkeley

INTERNATIONAL RECEPTION
Monday, 4:00 PM–5:30 PM
Convention Center, Exhibition Hall, SEG Avenue, Booth 142

The international reception provides an opportunity to celebrate the global SEG Membership and attendees who are driving oil and gas activities around the world. Don’t miss your chance to network with high-level thought leaders and learn more about the latest discoveries and future global activity in geosciences. Enjoy libations, refresh global acquaintances and make some new ones. Entertainment provided by the sounds of Mariachi Nuevo Estilo.

9TH ANNUAL NETWORKING EVENT OF THE SEG WOMEN’S COMMITTEE
Monday, 6:00 PM–8:00 PM
Convention Center, Room 220

This event will bring members and students together for an opportunity to network, discuss current events and trends, and hear a prominent female leader in the industry share her experiences. This will be a ticketed event with hors d’oeuvres and a cash bar.

Tickets are on sale through 12:00 PM (CDT) Sunday or until sold out.

GEOSCIENTISTS WITHOUT BORDERS® RECEPTION
Monday, 6:00 PM–7:00 PM
Grand Hyatt: Republic AB

Join us to visit with GWB project leaders and participants to learn more about SEG’s grant program focused on funding humanitarian applications of geoscience knowledge and technology around the world, in communities needing help with water exploration, disaster preparedness or pollution mitigation.

APPLIED SCIENCE EDUCATION PROGRAM
Tuesday, 9:00 AM–12:00 PM
Convention Center, Stars at Night Ballroom B4

Join featured speaker, Dr. Scott W. Tinker of the Bureau of Economic Geology, for his talk “Climate, Poverty and Realistic Energy Solutions.” This event is complimentary for delegates and welcomes students from local high schools to experience the world of geosciences. The audience will have an opportunity to interact with Dr. Tinker after his talk concludes. SEG Annual Meeting Vice-Chair, Kevin Woller, will give an overview of geophysics and give the students a preview of what they will see on their tour of the exhibition floor.
LATIN AMERICAN AND CARIBBEAN LUNCH
Tuesday, 11:30 AM–1:00 PM
Convention Center, Room 220

The Latin American-themed lunch celebrates SEG members of Latin America and features keynote speaker, Haracio Marìn, Director General E&P at Tecpetrol. He will deliver his keynote presentation, “Project Fortin de Piedra — Challenges in Developing the Vaca Muerta.” Marìn will discuss project results while detailing operational challenges and Tecpetrol’s experience in the industrialization of its operations in the non-conventional field, Vaca Muerta.

Tickets are on sale through 12:00 PM (CDT) Monday or until sold out.

DEVELOPMENT AND PRODUCTION LUNCH
Tuesday, 11:30 AM–1:00 PM
Convention Center, Room 215

The D&P technical lunch will discuss relevant industry topics and feature a keynote speaker. Tickets are on sale through 12:00 PM (CDT) Monday or until sold out.

EMERGING PROFESSIONALS HAPPY HOUR
Tuesday, 4:30 PM–6:30 PM
Convention Center, 3rd Floor Terrace

Enjoy some appetizers and a drink while networking with other young professionals in the industry. You won’t want to miss the speaker at 5:30 PM who will speak on the topic, “Current Landscape of Oil, Gas, and Unconventionals for Emerging Professionals Career Path.”

NEAR-SURFACE GEOPHYSICS TECHNICAL SECTION RECEPTION
Tuesday, 7:00 PM–10:00 PM
Iron Cactus Mexican Restaurant
200 River Walk, Suite 100

The reception will begin with a short business meeting followed by the presentation of the 2019 NSTS Honors and Awards. The NSTS membership is invited to network and enjoy some light food and beverages. The NSTS reception is free to NSTS members, but registration is required for the event.

No tickets available at the door.

MEMBERS-ONLY BREAKFAST: MEET, EAT, AND GREET
Wednesday, 8:00 AM–10:00 AM
Convention Center, Room 220

All SEG members are invited to join the 2019 Members-only Breakfast: Meet, Eat, and Greet. The event is an opportunity for SEG members to meet leaders of SEG committees to share ideas and learn more about getting involved in SEG. Full breakfast with mimosas and Bloody Marys will be provided. An RSVP is not required, but space will fill up fast. (Everyone attending must be registered for SEG19.)

DELEGATE LUNCH
Wednesday, 12:00 PM–1:00 PM
Convention Center, Exhibition Hall

Enjoy a complimentary lunch from the various food vendors inside the exhibition hall. This is a great time to network with colleagues and visit with exhibitors before the hall closes. To participate, you will need to pick up your complimentary delegate lunch card at the Information Booth in SEG Avenue, Booth 142, Sunday through Wednesday morning. The complimentary lunch is available to all delegates with a full registration.

SEG WRAP-UP PARTY: LATIN NIGHTS
Wednesday, 5:30 PM–8:30 PM
Convention Center, The LDR & Grotto

Samba Dancing!! Cigar Rolling!! Rum Tasting!! You do not want to miss this event …The Samba Vida Drum and Dance Group will welcome you to a night you won’t forget. Savor a stogie and learn the art of cigar rolling, feast on a variety of cuisine and quench your thirst from the specialty rum and margarita bars, ride a river boat, then dance the night away with DJ Scott. This event is the perfect end to a perfect week. Be sure to purchase your ticket to this event early! (New, low ticket price this year!)

No tickets available at the door.
ANCILLARY EDUCATION SESSIONS

Special education events this year include the SEG Distinguished Instructor Short Course (DISC), the EAGE EET 1, a Near-Surface Geophysics Summit, and a Near-Surface Geophysics Panel Discussion.

SEG DISC: PHYSICS AND MECHANICS OF ROCKS: A PRACTICAL APPROACH
Instructor: Manika Prasad, Colorado School of Mines
Friday, 8:00 AM–5:00 PM
Convention Center, Room 225D

Attendees should understand basic rock properties such as porosity, permeability, sediment compositions and depositions, and structural geology. It will be helpful to have familiarity, but not necessarily expertise, in seismic properties. The accompanying notes will include mathematical details, data and problem solutions for mineral modulus calculations, rock stiffness calculations for textural symmetries, velocity binning in flow zones, pore stiffness, and Gassmann fluid substitution. The lecture will focus on fundamental rock physics principles, applications, and analysis of results.

EAGE EET 1: SEISMIC MULTIPLE REMOVAL TECHNIQUES: PAST, PRESENT, AND FUTURE
Instructor: Eric Verschuur, Technical University Delft, Netherlands
Sunday, 8:00 AM–4:00 PM
Convention Center, Room 225D

The main objective of this course is to give the audience an overview of the techniques in seismic multiple removal, starting with the deconvolution-based methods from the 1960s, via the move-out discrimination techniques of the 1980s and ending up with wave-equation-based methods from the 1990s and their 3D extensions as developed in the 2000s. Furthermore, the current challenges in multiple removal and their relation with seismic imaging and inversion are treated. A secondary objective is to discuss more general processing concepts such as high-resolution seismic data transforms (Fourier, Radon), adaptive filtering techniques, wave-equation-based forward and inverse wave propagation and the processing of seismic data in different transform domains.
NEAR SURFACE PANEL DISCUSSION:
SOLVING NEAR-SURFACE PROBLEMS WITH GEOPHYSICS AND ENGINEERING
Tuesday, 12:05 PM–1:05 PM
Convention Center, Room 221A

Engineers and geophysicists often focus on the same near-surface problems, and in some cases collaborate on the same projects, but information can sometimes get lost in translation. It is important that both professions utilize each other’s expertise effectively so that these problems can be solved efficiently to reduce the opportunity for future failures. This panel aims to provide students and professionals with a better understanding of how the engineering and geophysical communities are working together and how they can work together better. Panelists will include engineering and geophysics faculty members as well as working professionals in the engineering sector to provide perspectives from research and development to practical applications.

Panelists
• Dr. Joseph Coe, Temple University
• Dr. Mark Everett, Texas A&M University
• Jacob Spinsby, Terracon
• Dr. Stacey Tucker-Kulesza, K-State University

NEAR SURFACE SUMMIT:
NEAR-SURFACE GEOPHYSICS FOR ARCHAEOLOGICAL AND FORENSIC APPLICATIONS
Thursday, 8:30 AM–5:00 PM
Convention Center, Room 217D

This summit will teach participants the different geophysical methods that are commonly used for archaeological and forensic investigations; the types of targets that are commonly identified at these sites; strategies for survey design when collecting data at these sites; strategies for interpreting and/or ground-truthing the data collected; best practices for working with the broader community at these sites, and possible funding mechanisms for national and international studies. (.75 CEUs awarded)
Riverboat shuttles are available to the convention center from the SEG19 official hotels Monday–Wednesday.

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<thead>
<tr>
<th>HOTEL</th>
<th>PICK UP AT HOTEL</th>
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Journal of Geophysics and Engineering covers research and developments in geophysics and related areas of engineering including:

- Geodynamics
- Natural and controlled-source seismology
- Oil, gas and mineral exploration
- Petrophysics
- Reservoir geophysics
- Petroleum engineering
- Rock mechanics
- Geophysical software engineering
- Drilling technology
- Remote sensing, instrumentation and sensor design
SEG 2019
HONORS AND AWARDS CEREMONY
Tuesday, 17 September
6:30 PM, Grand Hyatt: Lone Star Ballroom, Salon AB

Don W. Steeples, Chair of the Honors and Awards Committee, cordially invites
you to attend the SEG 2019 Honors and Awards Ceremony to recognize and honor
talented individuals and organizations that have advanced our science and
benefited our Society.

DISTINGUISHED PROGRAMS

2019 SEG
Distinguished Instructor
Manika Prasad

2019 SEG Latin America
Honorary Lecturer
Gladys Gonzalez

2019 SEG North American
Honorary Lecturer
Heloise Lynn

2019 SEG Virtual Near
Surface Global Lecturer
Rosemary Knight

2019 SEG 1Q/2Q
Distinguished Lecturer
Felix J. Herrmann

2019 SEG Europe
Honorary Lecturer
Dirk Gajewski

2019 SEG Pacific South
Honorary Lecturer
Boris Gurevich

2019 SEG Presidential Award
Andrew Jay Feustel

2019 SEG 3Q/4Q
Distinguished Lecturer
John T. Etgen

2019 SEG Middle East and
Africa Honorary Lecturer
Hesham El-Kaliouby

2019 SEG South and East
Asia Honorary Lecturer
Subhashis Mallick

2019 SEG Presidential Award
Yogaani Bhatia
ESTABLISHED AWARDS OF THE SOCIETY

Maurice Ewing Award
Robert H. Solt

J. Clarence Karcher Award
Yangkang Chen

Virgil Kauffman Gold Medal
Mauricio D. Sacchi

J. Clarence Karcher Award
Xinding Fang

Distinguished Achievement
Rock Solid Images

Reginald Fessenden Award
Luis Alonso Gallardo

Life Membership
Mike Graul

Reginald Fessenden Award
Max A. Meju

Special Commendation
Blair Benson Schneider

J. Clarence Karcher Award
Hejun Zhu

Outstanding Educator
Laura Valentina Socco
SEG 2019
HONORS AND AWARDS CEREMONY

ACHIEVEMENT AWARDS

Best Paper in Geophysics in 2018
Amir Haroon, Klaus Lippert, Vladimir Mogilatov, Bülent Tezkan
First application of the marine differential electric dipole for groundwater investigations: A case study from Bat Yam, Israel

Best Paper in The Leading Edge in 2018
Jens-Erik Lund Snee and Mark D. Zoback
State of stress in the Permian Basin, Texas and New Mexico: Implications for induced seismicity

Best Paper in Interpretation in 2018
Gao Fenglin, Yan Song, Li Zhuo, Zhenxue Jiang, Zhiye Gao, Xinxin Zhang, Lei Chen, Qingxin Liu
Pore characteristics and dominant controlling factors of overmature shales: A case study of the Wangyinpu and Guanyintang Formations in the Jiangxi Xiuwu Basin

Best Paper presented at the 2018 Annual Meeting
Zhao Zheng, Henry C. Bland, Sean R. Machovoe
Frac-hits mapped by tube waves: A diagnostic tool to complement microseismic monitoring

Best Poster Paper presented at the 2018 Annual Meeting
Qiuzi Li, Harry W. Deckman, Deniz Ertaş
Magnetoseismic resistivity mapping: Fundamentals and challenges

Best Student Paper presented at the 2018 Annual Meeting
Bei Li
Q-interface imaging based on data-domain attenuation estimation
Best Student Poster Paper presented at the 2018 Annual Meeting
Elena Jaimes
*Amplitude variation with offset (AVO) inversion modeling with a local elastic solver*
ICEG
DON’T MISS THE FIFTH INTERNATIONAL CONFERENCE ON ENGINEERING GEOPHYSICS
21-24 October 2019
Al Ain, United Arab Emirates
SEG is proud to be a partner of ICEG 2019. The conference will concentrate on global innovation, creativity, advances, and new approaches in the field of engineering/environmental geophysics and related fields.

ICEG Innovation Award for Geophysics
All delegates of the 2019 ICEG Conference are invited to participate in a peer-judged competition in search of significant contribution to applied near-surface geophysics. This award focuses on innovative contributions that substantially advance the application of geophysics to near-surface problems.

The top three winners of the competition will receive cash prizes of US$10,000, US$7,000, and US$5,000.

For more information and sponsorship and exhibit opportunities visit seg.org/events/iceg2019.
2019 TECHNICAL PROGRAM COMMITTEE

DIMITRI BEVC
CHAIR

OLGA NEDORUB
CO-CHAIR

CENGIZ ESMERSOY
WORKSHOP COORDINATOR

RUBEN MARTINEZ
BOARD LIAISON

JENNY COLE
STAFF LIAISON

Ana Curcio
Andrew Royle
Anusha Sekar
Aria Abubakar
Bin Wang
Bryce Swinford
Chester Weiss
Chip Story
Chris Krohn
Chuck Campbell
Claudia Dueñas
Clement Kostov
Damien Jougnot
Eric Von Lunen
Evan Um
Faqi Liu
Gabino Castillo
Gokay Bozkurt
Hejun Zhu
Jeff Nunn
Jim Schuelke
José Arce
Julian Ivanov
Ke Wang
Kenton Prindle
Kevin Woller
Konstantin Osypov
Laurie Weston Bellman
Laurie Whitesell
Mark Everett
Michel Verliac
Mike Yates
Mirko van der Baan
Niels Grobbe
Nizar Chemingui
Ray Abma
Richard Pagel
Richard Van Dok
Robert Meek
Robert Merrill
Ron Bianco
Sarah Devriese
Shauna Oppert
Simon Voisey
Stephen Cole
Ted Asch
Tom Thomas
Vanessa Brown
The technical program features more than 1,070 quality presentations in 155 diverse sessions, including eight special sessions and one special global session.

Geoscience professionals from all geophysical disciplines and all parts of the world are represented and will share their latest case histories, technological advancements, and research discoveries.

The technical program will begin Monday at 1:50 PM, following the SEG19 Opening Session and Presidential Address. Oral sessions will run through Wednesday at 5:10 PM, and poster sessions will run through Wednesday at 4:20 PM. Postconvention workshops will take place in the technical session area all day Thursday and a half day Friday to accommodate same-day travel home.

### SPECIAL SESSIONS
These dedicated special sessions will be offered to complement the technical program:

- Recent Advances and the Road Ahead
- CO₂ Monitoring
- DAS, Borehole and Microseismic Geophysics for Unconventionals
- Geoscientists Without Borders® and Humanitarian Geophysics
- Machine Learning and Artificial Intelligence Applied to Geophysics
- Seismic Advancements in the Permian
- SEG/AGU Hydrogeophysics
- Surface Wave Method Applications

### SPECIAL GLOBAL SESSION
- Latin America - New Plays and Challenges

### MEET AND GREET
We will conduct a “Meet and Greet.” Arrive at your session room at least 30 minutes early for the “Meet and Greet.” This will allow you the opportunity to meet your session chairs and fellow speakers in advance.

### EVALUATE PRESENTATIONS
Download the “SEG Events” Mobile App to evaluate technical program presentations. Locate the presentation and select “Rate.”

### NEW THIS YEAR
Poster presenters will be available at their designated poster station during the times outlined below. This will allow the opportunity for presenters and attendees to engage in discussion about their work outside their scheduled presentation time.

- Morning session presenters: 9:20 AM–10:20 AM
- Afternoon session presenters: 1:50 PM–2:50 PM

Please note that poster sessions are not listed in the official program. The poster presentations can be found by visiting the “SEG Events” Mobile App and selecting “Technical Program.”

Details regarding poster sessions can be found in the SEG Events Mobile App. Put the power of SEG19 in the palm of your hand! Download the SEG Events Mobile App for free at your favorite app store.
TECHNICAL PROGRAM SCHEDULE AT A GLANCE

With more than 1,400 abstracts received for review, the 2019 Technical Program features more than 1,070 quality presentations in 155 diverse sessions, including eight special sessions and one special global session.

Abbreviations & Topic Areas

ACQ  Acquisition and Survey Design
ANI  Anisotropy
AVOSI AVO and Seismic Inversion
BG  Borehole Geophysics
DAS  Distributed Acoustic Sensing
EMRS  EM Exploration and Reservoir Surveillance
FWI  Full Waveform Inversion
GM  Gravity and Magnetics
INT  Interpretation
IS  Induced Seismicity
MG  Mining
MLDA  Machine Learning and Data Analytics for E&P
MS  Multicomponent Seismic
NS  Near Surface
PS  Passive Seismic
RC  Reservoir Characterization
RP  Rock Physics
SGS  Special Global Session
SM  Seismic Modeling
SPET  Seismic Processing: Emerging Technologies
SPMI  Seismic Processing: Migration
SPMNR  Seismic Processing: Multiples, Noise, and Regularization
SS  Special Session
ST  Seismic Theory
SVE  Seismic Velocity Estimation
TL  Time Lapse
VSP  Vertical Seismic Profile

**ORAL**

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<tr>
<th>Room</th>
<th>Monday, 16 September 1:50 PM–5:10 PM</th>
<th>Tuesday, 17 September 8:30 AM–11:50 AM</th>
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<tbody>
<tr>
<td>214C</td>
<td>SPMI 1: Enhancement of RTM and its Applications 1</td>
<td>SPMI 2: Least Squares Migration Improvement and Applications 1</td>
</tr>
<tr>
<td>214D</td>
<td>SPET 1: Signal and Image Processing</td>
<td>GM 1: Potential Fields Interpretation via Inversion and Modeling</td>
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<tr>
<td>217A</td>
<td>RC 1: Statistical Methods and Machine Learning</td>
<td>RC 2: Inversion and Integrated Studies</td>
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<td>217B</td>
<td>AVOSI 1: Case Studies 1</td>
<td>SVE 1: New Methods on Velocity Analysis</td>
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<tr>
<td>217C</td>
<td>NS 1: Dynamic Coastal Environment: Crossing the Land/Sea Interface</td>
<td>NS 2: Engineering Geophysics</td>
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<td>217D</td>
<td>ANI 1: Applications 1</td>
<td>ANI 2: Applications 2</td>
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<tr>
<td>221A</td>
<td>ACQ 1: Land Seismic 1</td>
<td>ACQ 2: Marine Seismic</td>
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<td>221B</td>
<td>INT 1: Applications of Modeling and Inversion</td>
<td>INT 2: Applications of Machine Learning and Inversion</td>
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<td>221C</td>
<td>DAS 1: Applications and Developments</td>
<td>MLDA 2: Interpretation 1</td>
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<td>221D</td>
<td>MLDA 1: Seismic Processing</td>
<td>MLDA 3: Seismic Inversion 1</td>
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<tr>
<td>225B</td>
<td>TL 1: Acquisition and Processing</td>
<td>TL 2: Case Studies</td>
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<tr>
<td>225C</td>
<td>MS 1: Case Studies and Imaging 1</td>
<td>EMRS 1: Reservoir and Fracture Monitoring</td>
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<tr>
<td>301B</td>
<td>SS 1: Recent Advances and the Road Ahead</td>
<td>SS 3: SEG/AGU Hydrogeophysics</td>
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<tr>
<td>302B</td>
<td>FWI 1: Reflections and Joint Migration</td>
<td>FWI 2: Salt Model Updating</td>
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<tr>
<td>303B</td>
<td>SS 2: Geoscientists Without Borders® and Humanitarian Geophysics</td>
<td>SS 4: DAS, Borehole and Microseismic Geophysics for Unconventionals</td>
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<td>304A</td>
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<td>SM 2: Acoustic, Visco-acoustic and VTI Modeling</td>
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<td>304B</td>
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<td>SPMNR 1: Data Conditioning and Noise Removal</td>
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<td>305</td>
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<td>RP 2: Poroelasticity</td>
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**POSTER**

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<td>MS P1: Case Studies and Imaging 2</td>
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<td>MLDA P2: Seismic Processing and Interpretation 2</td>
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<td>NS P1: Machine Learning and Airborne Geophysics</td>
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<td>SPMNR P1: Noise Attenuation and Seismic Data Reconstruction</td>
<td>ANI P2: Kinematics and Velocities 1</td>
</tr>
<tr>
<td>Tuesday, 17 September 1:50 PM–5:10 PM</td>
<td>Wednesday, 18 September 8:30 AM–11:50 AM</td>
<td>Wednesday, 18 September 1:50 PM–5:10 PM</td>
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<tr>
<td>SPMN 3: Least Squares Migration Applications and Diffraction Imaging</td>
<td>SPMN 4: 4-Imaging, Elastic and Other Imaging Methods</td>
<td>SPMN 5: Novel Imaging Methods and Applications 2</td>
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<tr>
<td>GM 2: Inversions in Potential Fields Interpretation</td>
<td>SPET 2: Enhanced Seismic Imaging</td>
<td>SPET 3: Data Acquisition and Processing</td>
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<tr>
<td>RC 3: Geomechanics, Fractures and Flow 1</td>
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<td>PS 2: Locations, Magnitudes and Derived Information</td>
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<tr>
<td>NS 3: Imaging and Modeling 1</td>
<td>BG 1: EM and Gravity Methods</td>
<td>BG 2: Acoustic Methods 2</td>
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<td>AVOSI 3: Applications 3</td>
<td>AVOSI 2: Methodology 3</td>
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<td>ACQ 3: Deblending and Sensors</td>
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<td>ACQ 5: Marine Ocean Bottom Seismic and Borehole</td>
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<td>INT 3: Case Studies 1</td>
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<td>ANI 4: Kinematics and Velocities 2</td>
<td>NS 4: Applications for Archaeology, Void, and Target Detection</td>
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<tr>
<td>MLDA 4: Seismic Inversion 2</td>
<td>MLDA 5: Interpretation 2</td>
<td>MLDA 6: Interpretation 3</td>
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<td>FWI 3: Cycle-skipping 2</td>
<td>FWI 5: Regularization Techniques 2</td>
<td>FWI 7: Theory and New Development</td>
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<tr>
<td>EMRS 2: Modeling and Imaging Algorithms</td>
<td>EMRS 3: Theory, Application and Case Studies</td>
<td>NS 5: Imaging and Modeling 2</td>
</tr>
<tr>
<td>SS 5: CO2 Monitoring</td>
<td>MG 1: New Methods and Developments</td>
<td>SS 7: Machine Learning and Artificial Intelligence Applied to Geophysics</td>
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<tr>
<td>FWI 4: Case Studies</td>
<td>FWI 6: Elastic and Multiparameter Method 2</td>
<td>IS 1: Induced Seismicity: Observations, Analysis, and Processes 2</td>
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<td>VSP 1: Applications, Imaging, and Analysis</td>
<td>ST 1: Theoretical Developments in Imaging, Inversion and Wave Phenomena</td>
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<tr>
<td>SM 3: Model Building and Modeling</td>
<td>SM 4: Modeling Methods</td>
<td>SM 5: Methods and Applications</td>
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<td>SPMNR 2: Multiples – Theoretical and Practical Advances</td>
<td>SPMNR 3: Noise Attenuation, Sampling, Signal Reconstruction</td>
<td>SS 8: Surface Wave Method Applications</td>
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<td>RP 3: Acoustic Modeling</td>
<td>RP 4: Induced Fracturing</td>
<td>SPMNR 4: Advances in Processing Methods and Applications</td>
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</tbody>
</table>

**Tuesday, 17 September 1:50 PM–4:20 PM**

- **RP P1:** Reservoir Characterization  
  - **MLDA P4:** Seismic Processing and Interpretation 4
  - **SPET P3:** New Methods and Applications

- **MLDA P3:** Seismic Processing and Interpretation 3
  - **MLDA P5:** Seismic Processing and Interpretation 5
  - **MLDA P6:** Seismic Processing and Interpretation 6

- **PS P2:** Case Studies: Ambient Noise
  - **INT P2:** Attributes and Inversion
  - **MLDA P7:** Seismic Processing and Interpretation 7
  - **MLDA P8:** Seismic Processing and Applications 2

- **INT P1:** Case Studies 2
  - **RC P4:** Geomechanics, Fractures and Flow 2
  - **RC P5:** Resolution, Attributes and Uncertainty
  - **RC P6:** Clastics, Carbonates, Volcanics and Igneous Lithology

- **RC P3:** Inversion
  - **RC P7:** Novel Methods
  - **RC P8:** Seismic Processing and Interpretation
  - **RC P9:** Seismic Processing and Applications 2

- **EMRS P3:** Inversion and Interpretation
  - **NS P2:** Novel Methods
  - **NS P3:** Seismic Processing and Applications 2

- **AVOSI P3:** Methodology 2
  - **AVOSI P4:** Methodology 4
  - **AVOSI P5:** Methodology 5

- **FWI P5:** Regularization Techniques 1
  - **FWI P6:** Field Applications and Practical Issues
  - **AVOSI P6:** Methodology 6

- **SPET P2:** Signal Processing
  - **IS P1:** Induced Seismicity: Observations, Analysis, and Processes 1
  - **FWI P7:** Stochastic Methods

- **SPMI P3:** Least Squares Migration Improvement and Applications 2
  - **SPMI P4:** Elastic and Other Imaging Methods
  - **MG P1:** New Methods and Case Histories

- **ACQ P2:** Land Seismic 3
  - **ACQ P3:** Land Seismic 4 and Data Compression and Drone
  - **SPMI P5:** Novel Imaging Methods and Applications 3

- **SPMNR P2:** Seismic Processing Methods for Weak Signals and Strong Noises
  - **SPMNR P3:** Noise Attenuation and Signal Enhancement
  - **ACQ P4:** Marine Seismic and Survey Design

- **TL P1:** Inversion and Quantitative Interpretation
  - **MLDA P8:** Geophysics: Novel Concepts
  - **SVE P2:** Practical Issues and Anisotropy
## TECHNICAL PROGRAM TOPICS AT A GLANCE

**ACQ: ACQUISITION AND SURVEY DESIGN**
- **ACQ 1** . . . . . . Land Seismic 1
- **ACQ 2** . . . . . . Marine Seismic
- **ACQ 3** . . . . . . Deblending and Sensors
- **ACQ 4** . . . . . . CS and Survey Design
- **ACQ 5** . . . . . . Marine Ocean Bottom Seismic and Borehole
- **ACQ P1** . . . . . Land Seismic 2
- **ACQ P2** . . . . . Land Seismic 3
- **ACQ P3** . . . . . Land Seismic 4 and Data Compression and Drone
- **ACQ P4** . . . . . Marine Seismic and Survey Design

**ANI: ANISOTROPY**
- **ANI 1** . . . . . . Applications 1
- **ANI 2** . . . . . . Applications 2
- **ANI 3** . . . . . . Applications 3
- **ANI 4** . . . . . . Kinematics and Velocities 2
- **ANI P1** . . . . . Methods and Applications
- **ANI P2** . . . . . Kinematics and Velocities 1

**AVOSI: AVO AND SEISMIC INVERSION**
- **AVOSI 1** . . . . Case Studies 1
- **AVOSI 2** . . . . Methodology 3
- **AVOSI 3** . . . . Workflows
- **AVOSI P1** . . . . Methodology 1
- **AVOSI P2** . . . . Case Studies 2
- **AVOSI P3** . . . . Methodology 2
- **AVOSI P4** . . . . Methodology 4
- **AVOSI P5** . . . . Methodology 5

**BG: BOREHOLE GEOPHYSICS**
- **BG 1** . . . . . . EM and Gravity Methods
- **BG 2** . . . . . . Acoustic Methods 2
- **BG P1** . . . . . Acoustic Methods 1
- **BG P2** . . . . . EM Methods

**DAS: DISTRIBUTED ACOUSTIC SENSING**
- **DAS 1** . . . . . . Applications and Developments
- **DAS 2** . . . . . . VSP, Modeling and Imaging Approaches

**EMRS: EM EXPLORATION AND RESERVOIR SURVEILLANCE**
- **EMRS 1** . . . . Reservoir and Fracture Monitoring
- **EMRS 2** . . . . . Modeling and Imaging Algorithms
- **EMRS 3** . . . . . Theory, Application and Case Studies
- **EMRS P1** . . . . Marine Application
- **EMRS P2** . . . . Modeling and Analysis
- **EMRS P3** . . . . Inversion and Interpretation

**FWI: FULL WAVEFORM INVERSION**
- **FWI 1** . . . . . . Reflections and Joint Migration
- **FWI 2** . . . . . . Salt Model Updating
- **FWI 3** . . . . . . Cycle-skipping 2
- **FWI 4** . . . . . . Case Studies
- **FWI 5** . . . . . . Regularization Techniques 2
- **FWI 6** . . . . . . Elastic and Multiparameter Method 2
- **FWI 7** . . . . . . Theory and New Development
- **FWI P1** . . . . Novel Approaches
- **FWI P2** . . . . Computational Issues
- **FWI P3** . . . . Cycle-skipping 1
- **FWI P4** . . . . Elastic and Multiparameter Method 1
- **FWI P5** . . . . Regularization Techniques 1
- **FWI P6** . . . . Field Applications and Practical Issues
- **FWI P7** . . . . Stochastic Methods

**GM: GRAVITY AND MAGNETICS**
- **GM 1** . . . . . . Potential Fields Interpretation via Inversion and Modeling
- **GM 2** . . . . . . Inversions in Potential Fields Interpretation
- **GM P1** . . . . Examples and Methods for Potential Fields

**INT: INTERPRETATION**
- **INT 1** . . . . . . Applications of Modeling and Inversion
- **INT 2** . . . . . . Applications of Machine Learning and Inversion
- **INT 3** . . . . . . Case Studies 1
- **INT 4** . . . . . . Faults and Fractures
- **INT 5** . . . . . . Depth: Control and Imaging
- **INT P1** . . . . . Case Studies 2
- **INT P2** . . . . . Attributes and Inversion
- **INT P3** . . . . . Offshore Techniques

**IS: INDUCED SEISMICITY**
- **IS 1** . . . . . . Induced Seismicity: Observations, Analysis, and Processes 2
- **IS P1** . . . . . . Induced Seismicity: Observations, Analysis, and Processes 1

**MG: MINING**
- **MG 1** . . . . . . New Methods and Developments
- **MG P1** . . . . . New Methods and Case Histories

**MLDA: MACHINE LEARNING AND DATA ANALYTICS FOR E&P**
- **MLDA 1** . . . . Seismic Processing
- **MLDA 2** . . . . Interpretation 1
- **MLDA 3** . . . . Seismic Inversion 1
- **MLDA 4** . . . . Seismic Inversion 2
- **MLDA 5** . . . . Interpretation 2
- **MLDA 6** . . . . Interpretation 3
- **MLDA P1** . . . Seismic Processing and Interpretation 1
- **MLDA P2** . . . Seismic Processing and Interpretation 2
- **MLDA P3** . . . Seismic Processing and Interpretation 3
- **MLDA P4** . . . Seismic Processing and Interpretation 4
- **MLDA P5** . . . Seismic Processing and Interpretation 5
- **MLDA P6** . . . Seismic Processing and Interpretation 6
- **MLDA P7** . . . Seismic Processing and Interpretation 7
- **MLDA P8** . . . Geophysics: Novel Concepts

**MS: MULTICOMPONENT SEISMIC**
- **MS 1** . . . . . . Case Studies and Imaging 1
- **MS P1** . . . . . Case Studies and Imaging 2
NS: NEAR SURFACE
NS 1 .... Dynamic Coastal Environment: Crossing the Land/Sea Interface
NS 2 .... Engineering Geophysics
NS 3 .... Imaging and Modeling 1
NS 4 .... Applications for Archaeology, Void, and Target Detection
NS 5 .... Imaging and Modeling 2
NS P1 .... Machine Learning and Airborne Geophysics
NS P2 .... Novel Methods
NS P3 .... Seismic Methods and Applications

PS: PASSIVE SEISMIC
PS 1 .... Case Studies: Reservoirs, Overburden
PS 2 .... Locations, Magnitudes and Derived Information
PS P1 .... Locations and Picking
PS P2 .... Case Studies: Ambient Noise

RC: RESERVOIR CHARACTERIZATION
RC 1 .... Statistical Methods and Machine Learning
RC 2 .... Inversion and Integrated Studies
RC 3 .... Geomechanics, Fractures and Flow 1
RC 4 .... Clastics and Carbonates
RC 5 .... Attributes, Transforms and Numerical Methods
RC P1 .... Clastics, Carbonates and Facies
RC P2 .... Machine Learning
RC P3 .... Inversion
RC P4 .... Geomechanics, Fractures and Flow 2
RC P5 .... Resolution, Attributes and Uncertainty
RC P6 .... Clastics, Carbonates, Volcanics and Igneous Lithology
RC P7 .... Novel Methods

RP: ROCK PHYSICS
RP 1 .... Geomechanical Models
RP 2 .... Poroealsticity
RP 3 .... Acoustic Modeling
RP 4 .... Induced Fracturing
RP P1 .... Reservoir Characterization

SGS: SPECIAL GLOBAL SESSION
SGS 1 .... Latin America - New Plays and Challenges

SM: SEISMIC MODELING
SM 1 .... Methods for Elastic Waves
SM 2 .... Acoustic, Visco-acoustic and VTI Modeling
SM 3 .... Model Building and Modeling
SM 4 .... Modeling Methods
SM 5 .... Methods and Applications

SPET: SEISMIC PROCESSING: EMERGING TECHNOLOGIES
SPET 1 .... Signal and Image Processing
SPET 2 .... Enhanced Seismic Imaging
SPET 3 .... Data Acquisition and Processing
SPET P1 .... Case Studies
SPET P2 .... Signal Processing
SPET P3 .... New Methods and Applications

SPMI: SEISMIC PROCESSING: MIGRATION
SPMI 1 .... Enhancement of RTM and its Applications 1
SPMI 2 .... Least Squares Migration Improvement and Applications 1
SPMI 3 .... Least Squares Migration Applications and Diffraction Imaging
SPMI 4 .... Q-Imaging, Elastic and Other Imaging Methods
SPMI 5 .... Novel Imaging Methods and Applications 2
SPMI P1 .... Novel Imaging Methods and Applications 1
SPMI P2 .... Enhancement of RTM and its Applications 2
SPMI P3 .... Least Squares Migration Improvement and Applications 2
SPMI P4 .... Elastic and Other Imaging Methods
SPMI P5 .... Novel Imaging Methods and Applications 3

SPMN: SEISMIC PROCESSING: MULTIPLES, NOISE, AND REGULARIZATION
SPMN 1 .... Data Conditioning and Noise Removal
SPMN 2 .... Multiples - Theoretical and Practical Advances
SPMN 3 .... Noise Attenuation, Sampling, Signal Reconstruction
SPMN 4 .... Advances in Processing Methods and Applications
SPMN P1 .... Noise Attenuation and Seismic Data Reconstruction
SPMN P2 .... Seismic Processing Methods for Weak Signals and Strong Noises
SPMN P3 .... Noise Attenuation and Signal Enhancement

SS: SPECIAL SESSION
SS 1 .... Recent Advances and the Road Ahead
SS 2 .... Geoscientists Without Borders® and Humanitarian Geophysics
SS 3 .... SEG/AGU Hydrogeophysics
SS 4 .... DAS, Borehole and Microseismic Geophysics for Unconventionals
SS 5 .... CO₂ Monitoring
SS 6 .... Seismic Advancements in the Permian
SS 7 .... Machine Learning and Artificial Intelligence Applied to Geophysics
SS 8 .... Surface Wave Method Applications

ST: SEISMIC THEORY
ST 1 .... Theoretical Developments in Imaging, Inversion and Wave Phenomena

SVE: SEISMIC VELOCITY ESTIMATION
SVE 1 .... New Methods on Velocity Analysis
SVE 2 .... Case Studies
SVE P1 .... New Methods on Tomography
SVE P2 .... Practical Issues and Anisotropy

TL: TIME LAPSE
TL 1 .... Acquisition and Processing
TL 2 .... Case Studies
TL P1 .... Inversion and Quantitative Interpretation

VSP: VERTICAL SEISMIC PROFILE
VSP 1 .... Applications, Imaging, and Analysis
Monday, 16 September 2019  
**ACQ 1 Land Seismic 1**  
*Session Chairs: Alison Small and Mark Wagaman*  
*Location: 221A*

**Synopsis:** This session includes six papers on high trace density seismic acquisitions, one paper on improving low frequency vibroseis signal, and one with innovative vibroseis correlation technique.

1:50 PM...... I-Sweep: an alternative way to cross-correlate seismic vibrator data  
Santiago L. Juranovic, DataSeismic Corp.  
(INT. AUD.: 4)  
Speaker: Santiago Juranovic

2:15 PM...... A high-precision 3D acquisition case for the complex structures in Keshen Area  
Zhou Xu, Liu Xinwen, Kong Dezeng, Di Jiangwei, and Fan Jing, BGP, CNPC  
(INT. AUD.: 3)  
Speaker: Xu Zhou

2:40 PM...... SmartLF for robust and straightforward reduction of low-frequency distortion  
Gilles Ollivrin and Nicolas Tellier, Sercel  
(INT. AUD.: 3)  
Speaker: Nicolas Tellier

3:05 PM...... Improving seismic image resolution in a carbonate fracture cave region: A case study  
Naijian Wang, Bureau of Geophysical Prospecting; Xiao-Bi Xie, University of California (Santa Cruz); Meng-Chuan Duan and Daoshan Li, Bureau of Geophysical Prospecting; and Ru-Shan Wu, WTOPR Research Consortium, Modeling & Imaging Lab  
(INT. AUD.: 2)  
Speaker: Naijian Wang

3:30 PM...... The world's largest continuous 3D onshore and offshore seismic survey sets ambitious quality and turnaround targets  
Guillaume Cambois, Saif Al Mesabbi, George Ainslie Casson, James Cowell, Mohamed Mahgoub, and Abdulla Al Kobaisi, ADNOC  
(INT. AUD.: 3)  
Speaker: Saif Al Mesabbi

3:55 PM...... Vibroseis sourcing methodology: A comparison of long, short, and slip-sweep 3D data image volumes acquired and constrained by equivalent source time (KWP Phase I)  
J.W. (Tom) Thomas, Tom Phillips, Kevin Werth, and Chris Lindsey, Dawson Geophysical  
(INT. AUD.: 3)  
Speaker: Kevin Werth

4:20 PM...... A comparison of 3D multi-component (9C) data image volumes acquired with conventional and simultaneous source techniques (KWP Phase II)  
J.W. (Tom) Thomas, Tom Phillips, Kevin Werth, and Chris Lindsey, Dawson Geophysical  
(INT. AUD.: 3)  
Speaker: James Thomas

4:45 PM...... Simultaneous vibroseis acquisition in West Texas: A premier survey  
Nick Moldoveanu, John-Ryan Szescila, John Quigley, Elizabeth Rosso, Vashudhaven Sudhakar, and Peter Jones, Schlumberger WesternGeco  
(INT. AUD.: 3)  
Speaker: Nicolea Moldoveanu

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Monday, 16 September 2019  
**ANI 1 Applications 1**  
*Session Chairs: Gabino Castillo and Marianne Rauch-Davies*  
*Location: 217D*

**Synopsis:** Papers related to practical applications including azimuthal anisotropy, fracture detection, and attribute analysis.

1:50 PM...... Minimum number of azimuth sectors for seismic anisotropy estimation  
Peter Mesdag and Leonardo Quevedo, CGG  
(INT. AUD.: 3)  
Speaker: Peter Mesdag

2:15 PM...... Layer anisotropic elastic parameters inversion based on Fourier coefficients of azimuthally elastic impedance  
Lin Li, China University of Petroleum (East China); Qicui Tu and Jiang Liu, Shanghai Branch of CNIOC, Ltd.; Guangzhi Zhang and Xinpeng Pan, China University of Petroleum (East China)  
(INT. AUD.: 3)  
Speaker: Lee Lin

2:40 PM...... Model parameterization and amplitude variation with angle and azimuth inversion for orthotropic parameters  
Lixiang Ji and Zhaoyun Zong, China University of Petroleum, Shandong  
(INT. AUD.: 3)  
Speaker: Lixiang Ji

3:05 PM...... A new anisotropic inversion method based on the sparse representation and dictionary learning  
Yaojun Wang, Zhenliang Zhang, Kai Xing, Xijun Wu, Hua Wang, and Guangmin Hu, University of Electronic Science and Technology of China, UESTC; and Lideng Gan, CNPC  
(INT. AUD.: 1)  
Speaker: Wang Yaojun

3:30 PM...... Estimating indicators of oil-bearing fractured reservoirs from frequency components of azimuthal seismic data  
Huaizhen Chen and Kristopher Innanen, Department of Geoscience, University of Calgary  
(INT. AUD.: 3)  
Speaker: Huaizhen Chen

3:55 PM...... Study of a fractured reservoir by using the anisotropy of seismic wave attenuation  
Fatet Bouchaala and Mohammed Y. Ali, The Petroleum Institute, part of Khalifa University of Science and Technology, Abu Dhabi, UAE; Jun Matsushima, The University of Tokyo, Frontier Research Center for Energy and Resources; Youcef Bouzidi, Eric M. Takam Takougang, and Aala A.I. Mohamed, The Petroleum Institute, part of Khalifa University of Science and Technology, Abu Dhabi, UAE  
(INT. AUD.: 4)  
Speaker: Fatet Bouchaala

4:20 PM...... Aligned porosity, near-angle P-P azimuthal amplitudes, and oil production  
Heloise Lynn, Lynn Inc.; and William Nicholas Goodway, Consultant  
(INT. AUD.: 3)  
Speaker: Heloise Lynn

4:45 PM...... Pressure and stress assessment in anisotropic rocks  
Alexander Edwards and Kester Waters, Ikon Science Ltd  
(INT. AUD.: 3)  
Speaker: Alexander Edwards
Monday, 16 September 2019
AVOSI 1 Case Studies 1
Session Chairs: Gokay Bozkurt and Satinder Chopra
Location: 217B
Synopsis: Application of seismic inversion andAVA analysis in real world scenarios.

1:50 PM...... Density inversion from seismic using a trans-dimensional approach: A field dataset example Reetam Biswas, University of Texas - Austin, Dhananjay Kumar, BP America Inc.; Minal Sen, University of Texas - Austin; and Akkel Paul and Katrina Packer BP America Inc. (INT. AUD.: 2)
Speaker: Reetam Biswas
2:15 PM...... Joint PP-PS litho-elastic AVA inversion: Example from Midland Basin Edan Gofer, Ran Bachrach, Simone Re, Federico Golfer’ Andreaesi, Schlumberger (INT. AUD.: 3)
Speaker: Edan Gofer
2:40 PM...... Frontier exploration: Lithology and fluid insights via forward modeling from locally constrained regional rock physics, Chidley Basin, Newfoundland and Labrador, Canada Nicholas Montevicchi, Ian Atkinson, Erin Gillis, Victoria Mitchell, Alice Spencer, and Richard Wright, Nalcor Energy Oil and Gas (INT. AUD.: 3)
Speaker: Nick Montevicchi
3:05 PM...... Simultaneous time-lapse WEB-AVO inversion for seismic reservoir monitoring: Application to CO₂ enhanced oil recovery at the Bell Creek oil field César Barajas- Olalde, Energy & Environmental Research Center, University of North Dakota, USA; Peter Haftinger, Dries Gisolf, Mengmeng Zhang, Anna Droujinina, and Panos Dougeris, Delft Inversion, Delft, The Netherlands; Seyedarizaf Khatibi, Lu Jin, Shaughn A. Burnison, John A. Hamling, and Charles D. Gorecki, Energy & Environmental Research Center, University of North Dakota, USA (INT. AUD.: 3)
Speaker: César Barajas-Olalde
3:30 PM...... Deepwater sub-salt carbonate reef reservoir prediction in Santos Basin, Brazil Xingda Tian, Handong Huang, and Yaneng Luo, China University of Petroleum (INT. AUD.: 3)
Speaker: Xingda Tian
3:55 PM...... Applying fit for purpose constraints to seismic inversion: A case study using a VSP corridor stack to look ahead of the drill bit Keith Edwards, Kuwait Oil Company; and Michael Kemper, Ikon Science Ltd. (INT. AUD.: 3)
Speaker: Theron Edwards
4:20 PM...... Anisotropic litho-petro-elastic AVA inversion for unconventional plays: Uncertainty analysis and example from the Permian Basin Ran Bachrach and Edan Gofer, Schlumberger (INT. AUD.: 3)
Speaker: Ran Bachrach
4:45 PM...... Nonlinear AVO inversion based on Zoeppritz equations to estimate density, P- and S-wave velocities, and the ratio of velocities: Case study of Gulf of Mexico Un Young Lim, Richard L. Gibson Jr., and Nurul Kabir, Texas A&M University (INT. AUD.: 3)
Speaker: Un Young Lim

Monday, 16 September 2019
DAS 1 Applications and Developments
Session Chairs: Samir Jreij and Yingping Li
Location: 221C
Synopsis: Topics include applications of DAS for near surface characterization, hydraulic fracture monitoring, DAS acquisition systems.

1:50 PM...... Near-surface S-wave velocity estimation using ambient noise from fiber-optic acquisition Zhen-dong Zhang, King Abdullah University of Science and Technology (KAUST); Mamdoh Alajami, King Abdulaziz City for Science and Technology (KACST); and Tariq Alkhalfah, King Abdullah University of Science and Technology (KAUST) (INT. AUD.: 3)
Speaker: Zhendong Zhang
2:15 PM...... Design and deployment of a prototype multicomponent distributed acoustic sensing loop array Kristopher Albert Innenan, University of Calgary; Donald Lawton, Kevin Hall, Kevin L. Bertram, and Malcolm Bruce Bertram, CREWES/University of Calgary; and Henry Clifford Bland, Halliburton/ Landmark (INT. AUD.: 3)
Speaker: Kristopher Albert Innenan
2:40 PM...... MASW analysis of active-source and passive DAS fiber-optic data Steve Cole and Martin Karrenbach, OptaSense (INT. AUD.: 3)
Speaker: Stephen Cole
3:05 PM...... DAS observation of guided waves in a shale reservoir generated by perforation shots Ariel Lellouch and Biondo Biondi, Stanford University; Steve Horne, Mark A. Meadows and Tamas Nemeth, Chevron Energy Technology Company (INT. AUD.: 2)
Speaker: Ariel Lellouch
3:30 PM...... Low-frequency ambient Distributed Acoustic Sensing (DAS): Useful for subsurface investigation? Jeffrey Shragge and Jihyun Yang, Colorado School of Mines; Nader A. Issa and Michael Roelens, Terra15 Pty Ltd; Michael Dentith and Sascha Schediwy, University of Western Australia (INT. AUD.: 2)
Speaker: Jihyun Yang
3:55 PM...... Case study of hydraulic fracture monitoring using low-frequency components of DAS data Masaru Ichikawa, Isao Kurosawa, Shinnozuke Uchiida, Ayato Kato, Yoshiharu Ito, and Sunao Takagi, JGMEC; Mike de Groot, Encana Corp.; and Shoji Har, DGMC (INT. AUD.: 3)
Speaker: Masaru Ichikawa
4:20 PM...... Extracting subsurface information based on extremely short period of DAS recordings Yumin Zhao, National University of Singapore; Gang Fang, National University of Singapore and Qingdao Institute of Marine Geology, China Geological Survey; and Yunyue Elita Li, National University of Singapore (INT. AUD.: 2)
Speaker: Yumin Zhao
Monday, 16 September 2019
FWI 1 Reflections and Joint Migration
Session Chairs: Adriano Gomes and Wenyi Hu
Location: 302B
Synopsis: Application of reflection FWI and joint inversion in image and data domain, with technical development and field data examples.

1:50 PM...... Reflection full-waveform inversion with data-space LSRTM
Maksym Kryvohuz, Shell International Exploration and Production Inc.; Henning Kuehl, Shell Global Solutions Canada; René-Édouard Plessix, Shell Global Solutions International; and Yi Yang, Shell International Exploration and Production Inc. (INT. AUD.: 3)
Speaker: Maksym Kryvohuz

2:15 PM...... Reflection full waveform inversion and its application to land data
Yong Ma and Feng Chen, ConocoPhillips; Cheng Cheng, ConocoPhillips and TGS; Zhengxue Li and Yu Zhang, ConocoPhillips (INT. AUD.: 3)
Speaker: Yong Ma

2:40 PM...... Preconditioned reflection full waveform inversion for subsalt imaging
Chao Wang, Paul Farmer, Tristram Burley, Carlos Calderon, Ian Jones, and John Brittan, ION (INT. AUD.: 3)
Speaker: Chao Wang

3:05 PM...... Using the full waveform both in FWI and wavefield tomography
M. Davydenko and D.J. Verschuur, Delft University of Technology (INT. AUD.: 3)
Speaker: Mikhail Davydenko

3:30 PM...... Robust velocity estimation via joint migration inversion and full waveform inversion
Gerald Eisenberg, Eliakim Schuennemann, TEECware GmbH; Guido Gierse, TEECSolutions LLC; Eric Verschuur, and Shan Qu, Delft University of Technology. (INT. AUD.: 4)
Speaker: Guido Gierse

3:55 PM...... On the reflectivity-velocity coupling issue in the RFWI method
Raphael Valensi and Reda Baina, Opera (INT. AUD.: 4)
Speaker: Raphael Valensi

4:20 PM...... A robust 3D acoustic full waveform inversion strategy for Malaysian basins
Kefeng Xin, Farah Syazana Dzulkifli, Ahmad Riza Ghazali, Muhammad Sajid, Chin Tee Ang, and M. Anwar Ishak, PETRONAS Research Sdn Bhd (INT. AUD.: 3)
Speaker: Kefeng Xin

4:45 PM...... Resolving Celtic Sea imaging anomalies through a multistage FWI and tomography workflow
Guy Hiblurn, Matt Hart, and Jian Miao, TGS (INT. AUD.: 3)
Speaker: Guy Hiblurn

Monday, 16 September 2019
INT 1 Applications of Modeling and Inversion
Session Chairs: Gianni Matteucci and Osareni Ogiesoba
Location: 221B
Synopsis: Demonstration of multiple modeling techniques and inversion algorithms to delineate structure and/or reservoir properties.

1:50 PM...... Fast geometric restoration of complex 3D structural models for seismic interpretation validation
Anne-Laure Tertois and Jean-Laurent Mallet, Emerson Automation Solutions (INT. AUD.: 4)
Speaker: Anne-Laure Tertois

2:15 PM...... Vector attributes: A family of advanced seismic attributes to assist in geological interpretation
Aicha Bounaim, Marie Etchebes, Jarle Haukås, Hilde Borgos, Bjørn Harald Fotland, and Lars Sonneland, Schlumberger Stavanger Research, Norway (INT. AUD.: 3)
Speaker: Aicha Bounaim

2:40 PM...... Pore pressure prediction from bulk modulus in shale based on rock physics modeling
Ting Lei, Xingyao Yin, and Zhaoyun Zong, China University of Petroleum (Huadong) (INT. AUD.: 4)
Speaker: Ting Lei

3:05 PM...... A modified expression of Q attribute and its application in hydrocarbon prediction
Yanli Liu, Zhenchun Li, Guoquan Yang, and Qiang Liu, China University of Petroleum (East China) (INT. AUD.: 3)
Speaker: Yanli Liu

3:30 PM...... Sketch-based modeling of salt domes
Suellen Motta, Marcelo Gattass, and Deane Roehl, Puc-Rio (INT. AUD.: 2)
Speaker: Suellen Motta

3:55 PM...... Fast matching pursuit based multi-scale seismic inversion
Song Pei, Xingyao Yin, and Kun Li, China University of Petroleum (East China) (INT. AUD.: 3)
Speaker: Song Pei

4:20 PM...... A planar anomaly trend correction time-depth conversion method based on well seismic constrained tomography velocity inversion
Tong Qin, Jiyan Bai, Ping Chen, and Shuzheng Zhao, CNOOC China Limited, Tianjin Branch (INT. AUD.: 3)
Speaker: Tong Qin
Monday, 16 September 2019
MLDA 1 Seismic Processing
Session Chairs: Vikram Jayaram and Tamas Nemeth
Location: 221D
Synopsis: Application of Machine Learning in Seismic Processing

1:50 PM...... Seismic data interpolation using CycleGAN
Harpreet Kaur, Nam Pham, and Sergey Fomel, The University of Texas at Austin
(INT. AUD.: 3)
Speaker: Harpreet Kaur

2:15 PM...... Cross-streamer wavefield interpolation using deep
convolutional neural network
Thomas Larsen Greiner, Odd Koltbjørn, Jan Erik Lie, Espen Harris Nilsen, and Andreas
Kjelsrud Evensen, Lundin-Norway; and Leiv Gelius, Universitetet i Oslo
(INT. AUD.: 3)
Speaker: Thomas Larsen Greiner

2:40 PM...... Inpainting of local wavefront attributes using artificial
intelligence
Kirill Gadylshin, Institute of Petroleum Geology and Geophysics SB RAS, Novosibirsk State University; Ilya Silvestrov
and Andrey Bakulin, EXPEC Advanced Research Center, Saudi Aramco
(INT. AUD.: 1)
Speaker: Kirill Gadylshin

3:05 PM...... Deep-learning based ocean bottom seismic wavefield
recovery
Ali Siahkoohi, School of Computational Science and Engineering, Georgia Institute of Technology; Rajiv
Kumar, Georgia Institute of Technology and DownUnder GeoSolutions, Perth, Australia; and Felix J. Herrmann, School of
Computational Science and Engineering, Georgia Institute of Technology
(INT. AUD.: 3)
Speaker: Ali Siahkoohi

3:30 PM...... Learning seismic image enhancement from pairs of 3D
partial and full image volumes
Enning Wang and Jeff Nealon, Chevron Energy Technology Company
(INT. AUD.: 3)
Speaker: Enning Wang

3:55 PM...... Wavefield compression for seismic imaging via convolutional
neural networks
Francesco Devoti, Claudia Parera, Alessandro Lieto, Daniele Moro, Vincenzo Lipari, Paolo Bestagini, and Stefano Tubaro, Politecnico di Milano, Italy
(INT. AUD.: 3)
Speaker: Vincenzo Lipari

4:20 PM...... Automatic phase picker for single component borehole
seismic data with deep neural network
Jing Zhang, China University of Mining and Technology (Beijing) and Stanford
University; Jerry M. Harris, Badr Al-Rumaih, and Dongzhuo Li, Stanford University
(INT. AUD.: 4)
Speaker: Dongzhuo Li

4:45 PM...... Deep learning for local seismic image processing: fault
detection, structure-oriented smoothing with edge-preserving, and slope estimation by using a single
convolutional neural network
Xinning Wu, Bureau of Economic Geology; Luming Li, Microsoft Applied Science
Group; Yunzhi Shi, Zhiheng Geng, and Sergey Fomel, Bureau of Economic Geology
(INT. AUD.: 3)
Speaker: Xinning Wu

Monday, 16 September 2019
MS 1 Case Studies and Imaging 1
Session Chairs: James Gaiser and Kenneth Story
Location: 225C
Synopsis: Exploration and development case studies using P, S, and
Ps wave data. Processing advances applied to imaging and inversion
of multicomponent data for exploration and development.

1:50 PM...... Azimuthal response and shear wave splitting of 9-component
shear waves for the fracture zones in a tight sand reservoir
Jiwei Cheng, Feng Zhang, Peng Wang, Lingyi He, CNPC
Keylab of Geophysical Prospecting; and XiangYang Li, BGP Inc.
(INT. AUD.: 2)
Speaker: Jiwei Cheng

2:15 PM...... The application of pure shear wave seismic data for gas
reservoir delineation
Zhiwen Deng, Chengwu Li, Guowen Chen, Jing Yang, Ruizhen Wang, Yonggui Hu, Shujie An, Haiili Wang,
and Zhongdong Du, BGP Inc. (INT. AUD.: 4)
Speaker: Zhiwen Deng

2:40 PM...... CFP-based shear wave velocity model building using
converted waves
Hongwei Liu, Mustafa Al-Ali, and Yi Luo, EXPEC Advanced Research Center, Saudi Aramco
(INT. AUD.: 3)
Speaker: Hongwei Liu

3:05 PM...... Structured quaternion-based tight frame for multicomponent
signal recovery
Qiang Zhao and QiZhen Du, China University of Petroleum (East China)
(INT. AUD.: 3)
Speaker: QiZhen Du

3:30 PM...... Simultaneous attenuation of multimode group roll in three-
component seismic data
Jianyong Bai and Orhan Yilmaz, Emerson (INT. AUD.: 3)
Speaker: Jianyong Bai

3:55 PM...... Anisotropic elastic reverse time migration with Gaussian
beams for multicomponent data
Jianyong Bai, Zhenchun Li, Kai Zhang, and Qiang Liu, China University of Petroleum (East China)
(INT. AUD.: 3)
Speaker: Jianyong Bai

4:20 PM...... Simulating kinematics of P- and S-wave scattering using
scalar wave equations
Yunyue Elita Li, Jizhong Yang, and Arthur Cheng, National University of Singapore; and Jiubing
Cheng, Tongji University (INT. AUD.: 4)
Speaker: Yunyue Li

4:45 PM...... Static correction strategy for converted wave data: A case
study from Western China
Donghui Bian, Xiaowei Wang, Zhe Yang, Wei Yang, and Shuhai Qie, NWGI (INT. AUD.: 4)
Speaker: Donghui Bian
Monday, 16 September 2019

NS 1 Dynamic Coastal Environment: Crossing the Land/Sea Interface
Session Chairs: John Goff and Michael Miner
Location: 217C
Synopsis: This session will highlight the latest developments in application of near-surface geophysical methods to the coastal zone, both land- and marine-based.

1:50 PM...... Identification of sand resources using subbottom profiling geophysical survey techniques offshore Louisiana, Gulf of Mexico, USA John O. Sullivan, Ocean Surveys, Inc.; and Michael D. Miner, The Water Institute of the Gulf (INT. AUD.: 3)
Speaker: John Sullivan
2:15 PM...... Applications of high-resolution 3D seismic systems for characterizing the shallow subsurface in nearshore marine environments Timothy Meckel, Bureau of Economic Geology and The University of Texas at Austin (INT. AUD.: 3)
Speaker: Timothy Meckel
2:40 PM...... Broadband waterborne hammer seismic source for imaging river and lake sub-bottoms André J.-M. Pugin, Kevin Brewer, and Gregory R. Brooks, Geological Survey of Canada (INT. AUD.: 3)
Speaker: Andre Pugin
3:05 PM...... High-resolution, shallow water geoacoustic mapping in the Mississippi Sound Tim McClinton, David Evans and Associates, Inc. (INT. AUD.: 3)
Speaker: Tim McClinton
3:30 PM...... An evaluation of the feasibility of the time-lapse electrical resistivity tomography method in quantifying submarine groundwater discharge in fine sediment and highly saline embayments Joseph Stearns, Texas A&M University-Corpus Christi Center for Water Supply Studies (INT. AUD.: 3)
Speaker: Joseph Stearns
3:55 PM...... Subsurface characterization of Padre Island using Ground Penetrating Radar (GPR) and Electrical Resistivity Imaging (ERI) Dionel Colmenero, Mohamed Ahmed, and Lilia Zavala, Department of Physical and Environmental Sciences, Texas A&M University – Corpus Christi (INT. AUD.: 3)
Speaker: Dionel Colmenero
4:20 PM...... Groundwater prospecting in a hard-rock coastal area using off-set TDEM method: Case study Hesham El-Kaliouby, National Research Centre, Geophysical Sciences Dept., Egypt. (INT. AUD.: 2)
Speaker: Hesham El-Kaliouby
4:45 PM...... Investigations into Groundwater Flow Towards a spring in the Saphire Area, Soufriere, St Lucia, West Indies Frank Dale Morgan, Saleh Al Nasser, and Ruel Jerry, Earth Resources Laboratory, Department of Earth, Atmospheric & Planetary Scs, Massachusetts Institute of Technology, Cambridge, MA; and Ananias Verneuil, Denney, St Lucia (INT. AUD.: 2)
Speaker: Saleh Al Nasser

Monday, 16 September 2019

RC 1 Statistical Methods and Machine Learning
Session Chairs: Olga Brusova and Brian Russell
Location: 217A
Synopsis: A wide range of statistical applications, from Bayesian to deep neural networks, for better reservoir prediction.

1:50 PM...... Log-facies classification using expectation-maximization Xiaozheng Lang, University of Wyoming; Mita Sengupta and Chicheng Xu, Aramco Services Company; Tianqi Deng, University of Texas; and Dario Grana, University of Wyoming (INT. AUD.: 3)
Speaker: Madhumita Sengupta
2:15 PM...... Deep convolutional neural networks as an estimator of porosity in thin-section images for unconventional reservoirs David Duarte-Coronado, Jerson Tellez-Rodriguez, Rafael Pires de Lima, Kurt Marfurt, and Roger Slatt, The University of Oklahoma, School of Geology and Geophysics (INT. AUD.: 3)
Speaker: Jerson Tellez
2:40 PM...... Facies classification using semi-supervised deep learning with pseudo-labeling strategy Asghar Saleem, Junhwan Choi, Daeyeong Yoon, and Joongmoo Byun, RISE.ML Lab., Hanyang University (INT. AUD.: 3)
Speaker: Saleem Asghar
3:05 PM...... A machine learning approach to quantitative interpretation Ehsan Zabihi Naeini, Ikon Science (INT. AUD.: 3)
Speaker: Ehsan Zabihi Naeini
3:30 PM...... Seismic reservoir characterization based on Probabilistic Neural Networks Jie Liu, Xiaohong Chen, and Jingye Li, State Key Laboratory of Petroleum Resources and Prospecting, China University of Petroleum (Beijing), and CNPC Key Laboratory of Geophysical Prospecting, China University of Petroleum (Beijing);Jun Gao and AiXia Liu, Sinopec Petroleum Exploration and Production Research Institute, Beijing, China (INT. AUD.: 1)
Speaker: Jie Liu
3:55 PM...... Entropy QC for Bayesian facies estimations John V. Pendrel and Henk J. Schouten, CGG (INT. AUD.: 3)
Speaker: John Pendrel
4:20 PM...... Predicting production metrics for unconventional shale reservoirs Christopher P. Ross, Cross Quantitative Interpretation, LP (INT. AUD.: 2)
Speaker: Christopher Ross

GET DOWN AND BOOGIE!
Join SEG President Rob Stewart and past SEG Presidents at the Presidential Jam Tuesday night!
Open and free to all delegates!
Monday, 16 September 2019
RP 1 Geomechanical Models
Session Chairs: Bruce Karr and Andrew Lewis
Location: 305
Synopsis: Each paper discusses models of axial strain and supplemental fracture predictions.

1:50 PM..... Depth to the top of overpressure in the deepwater Gulf of Mexico: Garden Banks, Green Canyon, Keathley Canyon, and Walker Ridge
Sharon Cornelius, University of Houston; and Peter A. Emmet, Brazos Valley GeoServices Inc. (INT. AUD.: 3)
Speaker: Sharon Cornelius

2:15 PM..... The rock physics implication of Poisson impedance and its application on sandstone reservoir characterization
Yijie Zhou and Yequan Chen, Sinogec Tech Houston, LLC (INT. AUD.: 4)
Speaker: Yijie Zhou

2:40 PM..... Modeling and analysis of seismic wave attenuation based on rock physics models
Lei Wang and Xi Zheng, Research Institute of Petroleum Exploration & Development-Northwest (NWGI) Petrochina (INT. AUD.: 3)
Speaker: Wang Lei

3:05 PM..... A comparative study of the stress-dependence of dynamic and static moduli for sandstones with different porosities
Yang Wang, De-hua Han, and Jiali Ren, Rock Physics Lab, University of Houston; Hui Li, School of Electronic and Information Engineering, Xi’an Jiaotong University; and Yonghao Zhang, CNPC Logging Co., Ltd (INT. AUD.: 4)
Speaker: Yang Wang

3:30 PM..... Elastic anisotropy of clay in shales
Colin M. Sayers and Lennert D. den Boer, Schlumberger (INT. AUD.: 3)
Speaker: Colin Sayers

3:55 PM..... Impact of contact cement shape on radial pressure and stress distributions
Vishal Das, Stanford University; and Nishank Saxena and Ronny Hofmann, Shell International Exploration and Production Company, Houston, Texas, USA (INT. AUD.: 3)
Speaker: Vishal Das

4:20 PM..... Rock physics constrained seismic anisotropy parameter inversion: A synthetic study
Fuyong Yan and De-Hua Han, University of Houston, Texas, USA (INT. AUD.: 3)
Speaker: Fuyong Yan

4:45 PM..... Numerically estimating rock frame properties of a mixed calcite and dolomite hand sample using Computed Tomography (CT)
Eric J. Goldfarb, Nicola Tisato, Ken Ikeda, Charles Kerans, Richard A. Ketcham, and Kiara Gomez, The University of Texas at Austin, Jackson School of Geosciences; and John M. Boone, University of California, Davis, Department of Radiology (INT. AUD.: 3)
Speaker: Eric Goldfarb

Monday, 16 September 2019
SGS 1 Latin America - New Plays and Challenges
Session Chairs: Ana Curcio and Claudia Duenas
Location: 304B
Synopsis: Latin America session will have an overview about technology, new plays and technical challenges in different projects that use geophysical methods to support the search of resources.

1:50 PM..... Feasibility of using Vibroseis technology in seismic acquisition in South America, social, environmental and technical perspective: Colombia case
Alexander Betancur, Petroseismic Services (INT. AUD.: 3)
Speaker: Alexander Betancur

2:15 PM..... Integrated near-surface characterization, Onshore Colombia: The Avila 3D Experiment
Edward Wiarda, Fabio Santamaria, Diana Marcela Rodríguez, Hans Morales, Eduardo Jimenez, Jhon Quintero, Ruth Beltran, and Juan Soldo, Ecopetrol; and Diego Niño and Daniela Guerrero, Universidad Nacional (INT. AUD.: 3)
Speaker: Edward Wiarda

2:40 PM..... Big seismic data to win big in Trinidad & Tobago
Timothy Fox, Christian Theriot, and Sheldon Barron, Shell Exploration & Production Company (INT. AUD.: 3)
Speaker: Timothy Fox

3:05 PM..... Southern Gulf of Mexico example of depth imaging of full-azimuth OBC seismic data
Arturo Bustos, Jose Carlos Ruiz, Nestor Daniel Ortiz, Salvador Cruz, Alfredo Vazquez, Jorge Diaz de Leon Chagoya and Silvino Dominguez Garcia, PEMEX; and Josue Jurado Ramirez, Claudia Romero, Federico Fenoglio, Lucin Zhang, Monica Aquino Guerra, Liubov Mulsheva, and John Mathewson, WesternGeco (INT. AUD.: 4)
Speaker: John Mathewson

3:30 PM..... Elastic parameter estimation for sweet spot identification in unconventional shale plays, Vaca Muerta Formation, Neuquén Basin, Argentina
Carlos Convers, Tom Davis, and Ali Tura, Colorado School of Mines; David Curia, Wintershall Energia Argentina; and Christian Hanitzsch, Wintershall Norge AS (INT. AUD.: 4)
Speaker: Carlos Convers

3:55 PM..... Petrogeophysics of the Brazilian pre-salt rocks
Guilherme Vasquez, Marcio Morschbacher, Mauren Ruthner, Yaro Silva, Isabela Carmo, Julice Ferreira, Camila dos Anjos, Vanessa Madrucci, and Julio Justen, Petrobras (INT. AUD.: 3)
Speaker: Guilherme Vasquez

4:20 PM..... Facies, data mining, and artificial intelligence approaches in the characterization of a carbonate reservoir in Campos Basin - Southeastern Brazil
Monica Tavares, Petroleum Engineering and Exploration Laboratory, Darcy Ribeiro Northern Rio de Janeiro State University; Nelson Franco Filho, Campos Basin Business Unit, Petrobras; and Abel Carraquilla, Petroleum Engineering and Exploration Laboratory, Darcy Ribeiro Northern Rio de Janeiro State University (INT. AUD.: 3)
Speaker: Monica Tavares

4:45 PM..... Structural imaging of Escondida porphyry copper mine, Chile, using seismic reflection
Heather Schijns and Gabriel Madero, BHP (INT. AUD.: 3)
Speaker: Heather Schijns
Monday, 16 September 2019
SM 1 Methods for Elastic Waves
Session Chairs: Kurt Nihei and Anusha Sekar
Location: 304A
Synopsis: Seismic modeling, wave propagation algorithms for elastic, anisotropic media

1:50 PM...... Comparing four numerical stencils for elastic wave simulation Hongwei Liu and Yi Luo, EXPEC Advanced Research Center, Saudi Aramco (INT. AUD.: 3)
Speaker: Hongwei Liu

2:15 PM...... An optimized finite-difference scheme based on the improved PSO algorithm for wave propagation Wang Z.Y. and W.L. Bai, College of Information Science and Technology, Beijing University of Chemical Technology, and H. Liu, Institute of Geology and Geophysics, Chinese Academy of Sciences (INT. AUD.: 5)
Speaker: Zhiyang Wang

2:40 PM...... Failures of the perfectly-matched layer method in frequency-domain seismic wave modelling in elastic anisotropic media Bing Zhou, Khalifa University of Science and Technology, Stewart Greenhalgh and Xu Liu, KFUPM; Youcef Bouzidi, Mohamed Kamel Riahi, and Mohammad Al-Khaled, Khalifa University of Science and Technology (INT. AUD.: 3)
Speaker: Bing Zhou

3:05 PM...... A 2.5D generalized first-order wave equation to accommodate various elastic media and different boundary conditions Shangbei Yang, Department of Earth Sciences, Khalifa University of Science and Technology, Abu Dhabi, UAE, and Department of Geophysics, School of Geology Engineering and Geomatics, Chang’an University, Xi’an, China; Bing Zhou, Department of Earth Sciences, Khalifa University of Science and Technology, Abu Dhabi, UAE; and Chaoying Bai, Department of Geophysics, School of Geology Engineering and Geomatics, Chang’an University, Xi’an, China (INT. AUD.: 3)
Speaker: Shangbei Yang

3:30 PM...... Scalar waveform time domain propagation in tilted orthorhombic media with Fourier finite differences Xiaolei Song, BP (INT. AUD.: 3)
Speaker: Xiaolei Song

3:55 PM...... Feasibility study on 3D frequency-domain anisotropic elastic wave modeling using spectral element method with parallel direct linear solvers Yang Li and Romain Brossier, Univ. Grenoble Alpes, ISTERRE; and Ludovic Mêtivier, Univ. Grenoble Alpes, ISTERRE and Univ. Grenoble Alpes, CNRS (INT. AUD.: 3)
Speaker: Yang Li

4:20 PM...... Coupled-domain acoustic-elastic solver for anisotropic media: A mimetic finite difference approach Harpreet Singh, Jeffery Shragge, and Ilya Tsvankin, Colorado School of Mines (INT. AUD.: 3)
Speaker: Harpreet Sethi

4:45 PM...... A numerical study of how randomly oriented cracks influence the nonlinear interactions of elastic waves Herurisa Rusmanugroho, Alison Malcolm, and Mehgdad Darjiani, Memorial University of Newfoundland (INT. AUD.: 1)
Speaker: Herurisa Rusmanugroho

Monday, 16 September 2019
SPET 1 Signal and Image Processing
Session Chairs: Nizar Chemingui and Paul Williamson
Location: 214D
Synopsis: A collection of abstracts on data preconditioning, e.g. broadband recovery, denoising, and interpolation.

1:50 PM...... High-frequency wavefield recovery with weighted matrix factorizations Yijun Zhang, Department of Electrical & Computer Engineering, Georgia Institute of Technology; Shashin Sharan, Department of Earth & Atmospheric Sciences, Georgia Institute of Technology; and Felix J. Herrmann, Department of Electrical & Computer Engineering, Georgia Institute of Technology, and Department of Earth & Atmospheric Sciences, Georgia Institute of Technology (INT. AUD.: 1)
Speaker: Yijun Zhang

2:15 PM...... Automatic denoising by 2-D continuous wavelet transform Fantine Huot and Biondo Biondi, Stanford University; Anthony Lichnewsky, Schlumberger; Carlos Boneti, Google, previously Schlumberger (INT. AUD.: 3)
Speaker: Fantine Huot

2:40 PM...... A novel approach for seismic time-frequency analysis Yongzhen Ji, Sinopec Geophysical Research Institute, Nanjing, China University of Petroleum, Beijing; and Zhengliang Lin, Sinopec Geophysical Research Institute, Nanjing (INT. AUD.: 3)
Speaker: Yongzhen Ji

3:05 PM...... Bootstrapping invisible signals: prestack land data enhancement using nonlinear beamforming with local waveform corrections Andrey Bakulin, Maxim Dmitriev, and Ilya Silvestrov, EXPEC ARC, Saudi Aramco; and Dmitry Neklyudov, Kirill Gadyshin, and Maxim Protasov, Institute of Petroleum Geology and Geophysics SB RAS, Novosibirsk, Russia (INT. AUD.: 2)
Speaker: Dmitry Neklyudov

3:30 PM...... Prestack phase corrections using local seismic attributes Sarah Greer, University of Texas at Austin, and Massachusetts Institute of Technology; Sergey Fomel, University of Texas at Austin; and Michael Fry, BP (INT. AUD.: 3)
Speaker: Sarah Greer

3:55 PM...... Interpolation of regularly sampled prestack seismic data with self-supervised learning Satyakee Sen, Sribharath Kainkaryam, Cen Ong, and Arvind Sharma, TGS (INT. AUD.: 2)
Speaker: Satyakee Sen

4:20 PM...... Processing techniques and challenges for high-resolution 3D marine seismic data: Case studies from the Gulf of Mexico and Japan Ye Feng, Thomas Hess, and Timothy Meckel, Bureau of Economic Geology and Institute for Geophysics, Jackson School of Geosciences, University of Texas at Austin (INT. AUD.: 3)
Speaker: Timothy Meckel

4:45 PM...... Construction of 3D and 5D D-volumes in prestack domain João H. Spegelich, CEPETRO/UNICAMP; Jorge H. Faccipieri, CCES/CEP and CEPETRO/UNICAMP; Nicholas T. Okita, CEPETRO/UNICAMP; Tiago A. Coimbra, CEPETRO/UNICAMP and Martin Tygel, CCES/CEP, and CEPETRO/UNICAMP (INT. AUD.: 2)
Speaker: João Henrique Spegelich
Monday, 16 September 2019

SPMI 1 Enhancement of RTM and its Applications 1
Session Chairs: Xin Cheng and Ian Jones
Location: 214C
Synopsis: Enhancements to the RTM algorithm from reducing RTM artifacts to efficient and accurate ways to generate RTM angle gathers.

1:50 PM...... Improving interpretability of seismic images with directional image partitions and model-based techniques Olga Zdraveva, Joe Zuech, George Zhao, Mohamed Hegazy and Ruoyu Gu, WesternGeco (INT. AUD.: 3)
Speaker: Olga Zdraveva

2:15 PM...... Dip-guided Laplacian image filter for RTM Charlie Jing, ExxonMobil Upstream Research Company; and John E. Anderson, Retired from ExxonMobil Upstream Research Company (INT. AUD.: 2)
Speaker: Charlie Jing

2:40 PM...... PS RTM with single mode wave propagations Bing Tang, Sheng Xu, and Hongbo Zhou, Equinor US; Hossein M. Zadeh and Marit S. Guttormsen, Equinor ASA (INT. AUD.: 4)
Speaker: Bing Tang

3:05 PM...... Reverse time migration as the transpose of forward operator by rapid expansion method (REM) Reynam C. Pestana and Daniel Revelo; CPGG/UFBA,INCT-GP/CNPq (INT. AUD.: 3)
Speaker: Reynam Pestana

3:30 PM...... Amplitude enhancement of RTM angle gathers with deconvolution Sean Crawley, Faqi Liu, Elena Klochikhina, Nizar Chemingui, and Dan Whitmore, PGS (INT. AUD.: 4)
Speaker: Sean Crawley

3:55 PM...... Simple, efficient hybrid domain common image gather C. Shin, Seoul National University; T. Ha, National Institute for Mathematical Sciences, Daejeon, Korea; and S. Ko, Shins Geophysics Corp., Seoul, Korea (INT. AUD.: 5)
Speaker: Changsoo Shin

4:20 PM...... Seismic imaging with optimal source wavefield reconstruction Ivan Lim Chen Ning and Paul Sava, Center for Wave Phenomena, Colorado School of Mines (INT. AUD.: 3)
Speaker: Ivan Lim Chen Ning

4:45 PM...... Sampling analysis in gather conversion Meixia Wang and Sheng Xu, Equinor US Operations (INT. AUD.: 2)
Speaker: Meixia Wang

1:50 PM...... The use of geophysics in unconventional reservoirs; a perspective and path forward Scott Singleton, Independence Resources Management (INT. AUD.: 3)
Speaker: Scott Singleton

2:15 PM...... Seismic inversion for engineering applications in unconventional reservoirs Colin M. Sayers, Sagnik Dasgupta, Lennert D. den Boer, Edan Gofer, Maria Lascano, David Paddock, Vasudhavon Sudhakar, and Andy Walz; WesternGeco (INT. AUD.: 3)
Speaker: Colin Sayers

2:40 PM...... Building realistic structure models to train convolutional neural networks for seismic structural interpretation Xinning Wu, Zhicheng Geng, Yunzhi Shi, Nam Pham, and Sergey Fomel, BEG, UT Austin (INT. AUD.: 3)
Speaker: Xinning Wu

3:05 PM...... Results from a 3D field trial with a seismic acquisition and processing method based on continuous wavefields Tilman Klüver, Stian Hegna, and Jostein Lima, PGS (INT. AUD.: 3)
Speaker: Tilman Klüver

3:30 PM...... The first active seismic experiment on Mars to characterize the shallow subsurface structure at the InSight landing site N. Brinkman, C. Schmelzbach, D. Sollberger, M. van Driel, J. ten Pierick, J. O. A. Robertsson, F. Andersson, S. Stähler, and D. Giardini, ETH, Zürich; S. Kedar, T. Hudson, K. Hurst, A. Kiely, and W. B. Banerdt, Jet Propulsion Laboratory, California Institute of Technology; M. Grott, T. Spohn, and C. Krause, Deutsches Zentrum für Luft und Raumfahrt (DLR); L. Fayon and P. Lognonné, Institut de Physique du Globe, Paris; B. Knapmeyer-Endrun, University of Cologne; P. Delage, Ecole des ponts, France; W. T. Pike, Imperial College, London; A. Horleston and N. Teenby, University of Bristol, Bristol, UK; and C. Vretto, Technical University Kaiserslautern (INT. AUD.: 2)
Speaker: Nienke Brinkman

3:55 PM...... From incremental to transformational workflows: Contemporary imaging and what comes next John Brittan and Ian F. Jones, ION (INT. AUD.: 3)
Speaker: John Brittan

4:20 PM...... Waveform inversion via source extension Guanghui Huang, Michigan State University; Rami Nammour, Total E&P R&T USA; William W. Symes, Rice University; and Mohamed Dolliazal, Total E&P R&T USA (INT. AUD.: 3)
Speaker: William Symes

4:45 PM...... Time reversal in seismic Evgeny Landa, Tel-Aviv University; and Matan Shustak, Emerson (INT. AUD.: 1)
Speaker: Evgeny Landa
Monday, 16 September 2019
SS 2 Geoscientists Without Borders® and Humanitarian Geophysics
Session Chairs: Theodore Asch and Robert Merrill
Location: 303B
Synopsis: Bringing geoscience knowledge and technical skills to understand the shallow subsurface and effect positive change in communities facing environmental hardship and natural hazards.

1:50 PM...... Seismic and tsunami risk of the Java Trench and implementation of risk reduction strategies Ron Harris, William Meservy, Kevin Stuart, May Deng, and Chad Emmett, Brigham Young University; Hanif Suliaman, Carolus Prasetyadi, Gilang Setiadi, University Pembangunan Nasional Indonesia; Eko Yulianto, Irina Rafliana, and Purna Putra, Indonesian Institute of Science (LIPI); Sarah Hall, Mike Bunds, Anne Arendt, and Daniel Horns, Utah Valley University (INT. AUD.: 2)
Speaker: Ron Harris

2:15 PM...... Developing a precision irrigation framework to facilitate smallholder dry-season farming in developing countries: A case study in northern Ghana Jeremy M. Fontaine, Joseph Fentzke, and Erasmus K. Oware, The State University of New York at Buffalo; Eric Doe, International Institute of Tropical Agriculture, Tamale; Samuel Guug, The West African Science Service Center on Climate Change and Adapted Land Use (WASCAL); and John W. Lane Jr., US Geological Survey (INT. AUD.: 1)
Speaker: Erasmus Oware

2:40 PM...... Student-led water development in the Andean Puna Jasper Oshun, Geology Department, Humboldt State University; Margaret Lang, Environmental Resources Engineering, Humboldt State University; Kristina Keating, Earth and Environmental Sciences, Rutgers University-Newark; Olivia Helprin, Earth and Environmental Sciences, University of Michigan; and Wyclif Wunderlich, Geology Department, Humboldt State University (INT. AUD.: 3)
Speaker: Jasper Oshun

3:05 PM...... An international partnership to develop volcano monitoring capacities in Guatemala Silvio De Angelis, University of Liverpool; Andreas Rietbrock, Karlsruhe Institute of Technology; Yan Lavallee, William Carter, and Paul Wallace, University of Liverpool; Ellen Gottschämmter, and Alicia Rohnacher, Karlsruhe Institute of Technology (INT. AUD.: 2)
Speaker: Andreas Rietbrock

3:30 PM...... Active fault investigation by 3D ambient noise tomography in Hebei province, China Shunjia Tan, Laurel; Koichi Hayashi, OYO Corporation/Geometrics Inc.; and Bin He and Daxiang Cheng, Laurel (INT. AUD.: 3)
Speaker: Koichi Hayashi

3:55 PM...... Application of electrical resistivity survey to determine the possible causes of recurrent road failure in Southwestern Nigeria case study: Oladide Ibiyele street, Iwaya Lagos Nelly Omoruyi and Kayode Oyedele, University of Lagos (INT. AUD.: 1)
Speaker: Nelly Omoruyi

4:20 PM...... Conductive layer detection in periglacial Antarctic environment with time-domain electromagnetics Michele T. Bannister, Department of Physics and Astronomy, University of Canterbury, Christchurch, NZ, and Astrophysics Research Centre, School of Mathematics & Physics, Queens University Belfast, UK; David Nobes, Department of Geophysics, East China University of Technology, Nanchang; Ronald S. Sletten, Department of Earth and Space Sciences, University of Washington, Seattle; Myfanwy J. Godfrey, Raine Associates, Australia; and Peter Cottrell, Department of Physics and Astronomy, University of Canterbury, Christchurch, NZ (INT. AUD.: 3)
Speaker: David Nobes

4:45 PM...... Time-Lapse electrical resistivity and ground penetrating radar imaging of young polygonal patterned ground in Victoria Valley, McMurdo Dry Valleys, Antarctica Myfanwy J. Godfrey, Raine & Associates, Australia; David C. Nobes, Department of Geophysics, East China University of Technology, Nanchang; Michele T. Bannister, Astrophysics Research Centre, School of Mathematics & Physics, Queen’s University Belfast, Northern Ireland, UK; and Ronald S. Sletten, Department of Earth and Space Sciences, University of Washington, Seattle (INT. AUD.: 3)
Speaker: David Nobes

WATCH BUDDING ENTREPRENEURS COMPETE!
Contestants will pitch their ideas to the panel of experts at the second annual Shark Tank-inspired JAWS (Juice A Winning Startup) contest Monday afternoon!
Monday, 16 September 2019
TL 1 Acquisition and Processing
Session Chairs: Michael Helgerud and Michael Murat
Location: 225B
Synopsis: This session includes papers that capture technological advances in either acquisition or processing data with a focus on time-lapse issues.

1:50 PM...... Matching of 4D seismic data: Spectrum balancing vs conventional least squares filters P.J. Hatchell, Shell International Exploration and Production Inc.; and Maria Tatanova, Brunei Shell Petroleum (INT. AUD.: 3)
Speaker: Maria Tatanova

2:15 PM...... 4D using variable depth streamer and multi-sensors streamer acquisition: Is this configuration acceptable? Patrick Charron, Abderrahim Lafiram, Eddy Brosille, and Benoit Santos Luis, Total S.A.; and Sergio Tchikanah, Emerson Jungo, Kacem Chihik, and Celso Gomes, Total E&P Angola (INT. AUD.: 3)
Speaker: Patrick Charron

2:40 PM...... How to combine single hydrophone streamers with multi-component streamers in a 4D context: An offshore West Africa case study Didier Lecerf, Andrew Oates, Rebekah Brown, Elena Polyaeva, Francois Portaluri, Cyrille Reiser, David Raistrick, Adam Betteridge, and Joji Kumar, PGS; and Bruce Webb, Massimiliano Bertarini, Catia Rizzetto, Nazarena Colombi, Vincenzo Milluzzo, Marco Marchesini, Andrea Cimitan, and Ilario Franco, Eni E&P (INT. AUD.: 4)
Speaker: Didier Lecerf

3:05 PM...... Time-lapse full waveform inversion plus extended Kalman filter for high-resolution seismic models and uncertainty estimation Chao Huang and Tieyuan Zhu, Department of Geosciences, The Pennsylvania State University (INT. AUD.: 3)
Speaker: Chao Huang

3:30 PM...... Depth-domain prestack 4D inversion in complex geology Constantin Gerea, James Beckett, Sjoerd de Ridder, Mohammad Shahrami, and Ejes Bergounou - TOTAL (INT. AUD.: 3)
Speaker: Constantin Gerea

3:55 PM...... Central-difference time-lapse 4D seismic full waveform inversion Wei Zhou and David Lumley, The University of Texas of Dallas (INT. AUD.: 3)
Speaker: Wei Zhou

4:20 PM...... The effect of deghosting on the 4D response: Usan field, Nigeria Piero Agnisola, Ross O’Driscoll, and Philip G. Smith (ION); Dez Chu, ExxonMobil Houston; Essiet E. Assiak, Esso E&P Nigeria; and Charles Ugwueze and Paula Ukerun, Bulwark Services (INT. AUD.: 3)
Speaker: Piero Agnisola

4:45 PM...... Performance of a hybrid seismic monitoring system with buried receivers for an onshore carbonate reservoir: Current status and way forward Robert Smith, Andrey Bakulin, and Michael Jervis, Geophysics Technology, EXPEC ARC, Saudi Aramco (INT. AUD.: 3)
Speaker: Rob Smith

Tuesday, 17 September 2019
ACQ 2 Marine Seismic
Session Chairs: Adrian Peinado and Scott Sutherland
Location: 221A
Synopsis: Topics include environmental sensitive sourcing, wide azimuth towed streamers, reducing data re-acquisition, air gun array, design and signature estimation, and capitalizing on the nearfield hydrophone.

8:30 AM...... Marine vibrator source: Modular projector system Okwudili Orji, M.D.C Oscarsson-Nagel, W. Stötner, and Ø. Tratten, PGS; B. Armstrong, D. Nans, and P. Yeatman, Geospectrum Technologies (INT. AUD.: 3)
Speaker: Okwudili Orji

8:55 AM...... Measurement quality of the inline geophone of the midwater stationary cable Michel Manin and Eric Ballistique, Kietta (INT. AUD.: 3)
Speaker: Eric Ballistique

9:20 AM...... The influence of layered water velocity on the node positioning in OBN seismic exploration Ding Guandong, Cao Mingxiang, Quan Haiyan, Gong Tongjiu, Mao Hejiang, Zhang Xiaoming, and Zhu Chao, BGP, CNPC (INT. AUD.: 3)
Speaker: Guandong Ding

9:45 AM...... Onboard de-noise processing for improving towed marine seismic acquisition efficiency Volodya Hlebnikov, University of Oslo and CGG; Thomas Elboth and Yette Vinje, CGG; and Leiv-J. Gelius, University of Oslo (INT. AUD.: 3)
Speaker: Volodya Hlebnikov

10:10 AM... Virtual depth based low frequency marine air gun source design Honglei Shen and Thomas Elboth, CGG; Chunliu Tao and Ronghuang Wang - Second Institute of Oceanographic Ministry of Natural Resources, China (INT. AUD.: 3)
Speaker: Honglei Shen

10:35 AM... Survey performance of deeply-towed marine seismic vibrator: Comparative study with imaging results from an airgun array Hiroaki Ozasa, IHI Corporation; Eiichi Asakawa, Fumitoshi Murakami, and Ehsan Jamali Hondori, JGI Corporation; Junichi Takekawa and Hitoshi Mikada, Kyoto University (INT. AUD.: 4)
Speaker: Hiroaki Ozasa

11:00 AM... Comparison of near field hydrophone and high-resolution 3D seismic data in a deepwater field Priyanka Dutta and Paul Hatchell, Shell International Exploration and Production Inc. (INT. AUD.: 4)
Speaker: Priyanka Dutta

11:25 AM... A perturbed ghost model for estimating air-gun array signatures Rob Telling and Sergio Grion, Shearwater GeoServices LTD (INT. AUD.: 4)
Speaker: Robert Telling
Tuesday, 17 September 2019

ANI 2 Applications 2

Session Chairs: Henrik Roende and Colin Sayers

Location: 217D

Synopsis: Papers related to practical applications including rock physics and anisotropy, fracture detection, and attribute analysis.

8:30 AM...... The effect of mineral properties on rock physics modeling of shale anisotropy
Shuichi Desaki, Yuki Kobayashi, and Michinori Asaka, Inpex, (INT. AUD.: 3)
Speaker: Shuichi Desaki

8:55 AM...... Rock physics templates and anisotropy
Sranchand Prajapati, Changcheng Liu, and Deva Ghosh, Universiti Teknologi PETRONAS (INT. AUD.: 3)
Speaker: Sranchand Prajapati

9:20 AM...... Fracture-direction estimation by QVOA analysis: Validation by physical modeling
Tatiana Chichinina, Elena Kazatchenko, and Vladimir Sabinin, Instituto Mexicano del Petroleo, Mexico; Dmitry Popov and Viacheslav Polovkov, Saint-Petersburg State University, Russia; Jianxin Wei and Pinbo Ding, China University of Petroleum (Beijing), CNPC Key Laboratory of Geophysical Exploration, Beijing, China (INT. AUD.: 3)
Speaker: Tatiana Chichinina

9:45 AM...... Comparison of predicted fractures by three wide-azimuth methods: A shale reservoir fracture prediction case study
Tongcui Guo and Hongjun Wang, PetroChina Research Institute of Petroleum Exploration & Development, CNPC; Yueliang Guo, Jian Zhang, and Mingjun Jiang, CNODC; Pengyu Chen and Xiangwen Kong, PetroChina Research Institute of Petroleum Exploration & Development, CNPC (INT. AUD.: 2)
Speaker: Tongcui Guo

10:10 AM ... Using the azimuthal derivative of the amplitude for fracture detection
Chunhui Xie and Enli Wang, China National Petroleum Corporation; Tingjun Zhong, Peking University; and Guoliang Yan, Run He, and Tongcui Guo, China National Petroleum Corporation (INT. AUD.: 5)
Speaker: Chunhui Xie

10:35 AM ... $\Delta K$: A new seismic attribute based on Zoeppritz AVO inversion for estimation of seismic anisotropy
Un Young Lim, Richard L. Gibson Jr., and Nurul Kabir, Texas A&M University (INT. AUD.: 3)
Speaker: Un Young Lim

11:00 AM ... Multi-component vertical seismic profiling and crosswell shooting to define Ross Ice Shelf Structure, Antarctica
Jennifer Eccles and Franz Lutz, University of Auckland, NZ; David Prior, Christina Hulbe, Martin Forbes, Lisa Craw, and Holly Still, University of Otago, NZ; and Ross Ice Shelf drilling team (INT. AUD.: 1)
Speaker: Jennifer Eccles

11:25 AM ... Finding left-over moveout using semblance scans: FLOSS
Madhav Vyas, Esteban Diaz, Chandan Kumar, and James Mika, BP (INT. AUD.: 3)
Speaker: Madhav Vyas

Tuesday, 17 September 2019

EMRS 1 Reservoir and Fracture Monitoring

Session Chairs: Federico Miorelli and Souvik Mukherjee

Location: 225C

Synopsis: The papers highlight EM methods for monitoring energy/CO$_2$, reservoir and hydraulic fracture.

8:30 AM...... CSEM quantitative interpretation for reservoir property estimation and anti-model evaluation
Jan Petter Morten, Jon Olav Jønnsen, Elias Andre Norland, and Pål T. Gabrielsen, EMGS ASA; and John Reidar Granli, OMV Norway (INT. AUD.: 3)
Speaker: Jan Morten

8:55 AM...... Fast electrical imaging of injected fluid in hydraulic fracturing using a practical interactive parameter estimation method
Yinchu Li and Dikun Yang, Southern University of Science and Technology (INT. AUD.: 3)
Speaker: Yinchu Li

9:20 AM...... Hydraulic fracturing monitoring: New concept of electromagnetics linked to elastic modeling
Ana Curcio, Proingeo SA (INT. AUD.: 5)
Speaker: Ana Curcio

9:45 AM...... Assessment of uncertainty in parametric inversion of electromagnetic field data to determine propped hydraulic fracture geometry – a semi quantitative approach
Souvik Mukherjee, Wadhah Al-Taijli, and Terry Palisch, CARBO Ceramics; Kyle Haustveit, Devon Energy; Christoph Schwarzbach and Eldad Haber, Computational Geosciences Inc.; Wanjie Feng and Scott Urquhart, Zonge International (INT. AUD.: 2)
Speaker: Souvik Mukherjee

10:10 AM ... EM for reservoir monitoring: State of the art and a look to the future
Daniele Colombo and Gary W. McNeice, Geophysics Technology, EXPEC Advanced Research Center, Saudi Aramco; Weichang Li, Aramco Research Center – Houston, Aramco Services Company, USA; and Ernesto Sandoval-Curiel, Geophysics Technology, EXPEC Advanced Research Center, Saudi Aramco (INT. AUD.: 2)
Speaker: Daniele Colombo

10:35 AM ... Don’t let noise dominate the data: Mitigation of oilfield noise affecting surface-based controlled source electromagnetic monitoring during hydraulic fracturing operations
Oscar Vasquez, Drew Jones, Justin Oberle, Jimmy Trevino, and Mark S. Hickey, Deep Imaging (INT. AUD.: 3)
Speaker: Oscar Vasquez

11:00 AM ... Analysis of land-based CSEM data for CO$_2$ monitoring at Bell Creek, MT
W. Anderson McAliley, Center for Gravity, Electrical, and Magnetic Studies, Department of Geophysics, Colorado School of Mines; Benjamin R. Blos, Geology, Geophysics, and Geochemistry Science Center, United States Geologic Survey; Trevor Irons and Nathan Moodie, Energy & Geoscience Institute, Civil & Environmental Engineering, University of Utah; and Richard Krahenbuhl and Yaoguo Li, Center for Gravity, Electrical, and Magnetic Studies, Department of Geophysics, Colorado School of Mines (INT. AUD.: 2)
Speaker: Andy McAliley

11:25 AM ... Integral equation method for the subsurface sensing applications with wire-to-surface junction structures in layered media
Shubin Zeng and Jiefu Chen, University of Houston (INT. AUD.: 3)
Speaker: Shubin Zeng
Tuesday, 17 September 2019
FWI 2 Salt Model Updating
Session Chairs: Partha Routh and Guojian Shan
Location: 302B
Synopsis: Tackling subsalt imaging through FWI related processing, acquisition, workflow, and salt shape modeling.

8:30 AM...... Is the salt-related full-waveform inversion sorted out? Denes Vigh, Xin Cheng, Kun Jiao, Zhen Xu, and Wei Dai, Schlumberger/ WesternGeco (INT. AUD.: 3)
Speaker: Denes Vigh
8:55 AM...... Improving images under complex salt with ocean bottom node data Yuan Yao, Hongda Ma, Yan Liu, and Chao Peng, CGG; Gopal Mohapatra, Gregory Duncan, and Wesley Martins, Hess; and Steve Checkles, Formerly Hess (INT. AUD.: 3)
Speaker: Yuan Yao
9:20 AM...... Elastic full waveform inversion for salt model building in Gulf of Mexico Guoping Chang, Shell International Exploration & Production Inc.; Henning Kuehl, Shell Global Solutions Canada Inc.; Rene-Edouard Plessix and Alexandre Stopin, Shell Global Solutions International (INT. AUD.: 3)
Speaker: Rene-Edouard Plessix
9:45 AM...... FWI salt model update trials with sparse nodes Yi Huang, Jian Mao, Chong Zeng, and James Sheng, TGS (INT. AUD.: 3)
Speaker: Yi Huang
10:10 AM ... Salt velocity model building with FWI on OBN data: Example from Mad Dog, Gulf of Mexico Bertram Nolte, Francis Rollins, Qingsong Li, and Sireesh Dadi, BP America; Siju Yan, Jiawei Mei, and Rongxin Huang, CGG (INT. AUD.: 3)
Speaker: Bertram Nolte
10:35 AM ... Updating salt model using FWI on WAZ data in the Perdido area: Benefits and challenges Ravi Kumar, Huifeng Zhu, Vivek Vandrasdi, and Don Dobesh, CGG; and Alfredo Vazquez, Petemex (INT. AUD.: 3)
Speaker: Ravi Kumar
11:00 AM ... Applied 3D salt body reconstruction using shape optimization with level sets Taylor Dahlke, Stanford University (INT. AUD.: 3)
Speaker: Taylor Dahlke
11:25 AM ... Regularized full-waveform inversion for large 3D salt bodies Mahesh Kalita, King Abdullah University of Science and Technology; Ahmad Riza Ghazali, Petroliam Nasional Berhad (Petronas); Kefeng Xin, Petroliam Nasional Berhad (Petronas); Farah Syazana Dzulekfi, Petroliam Nasional Berhad (Petronas); and Tariq Alkhalifah, King Abdullah University of Science and Technology (INT. AUD.: 1)
Speaker: Tariq Alkhalifah

Tuesday, 17 September 2019
GM 1 Potential Fields Interpretation via Inversion and Modeling
Session Chairs: Edward Biegert and Luise Sander
Location: 214D
Synopsis: Using the tools in our toolbox for interpretation. Various examples of gradiometry and conventional data along with a number of algorithms.

8:30 AM...... Time-lapse geophysics in the Mesabi Iron District: A 4D magnetic aeromagnetic study Andrea Balza Morales, EDCON-PRI (INT. AUD.: 3)
Speaker: Andrea Balza
8:55 AM...... Improving deep crustal structure depth interpretation by integrating 2D gravity-magnetic modelling and structural restoration: Offshore Borneo Fawwaz Aziz, Roger Miller, and Carlos Giraldol, Petronas Carigali (INT. AUD.: 2)
Speaker: Fawwaz Nik Abdul Aziz
9:20 AM...... Gravity and magnetic data applications for hydrocarbon exploration offshore NW Australia Guimin Liu, Robert Scott, and Gerard O’Halloran, BHP Petroleum (INT. AUD.: 1)
Speaker: Guimin Liu
9:45 AM...... Using cosine and sine transforms for interpreting magnetic anomalies from dikes having arbitrary dip angles, induced and remanent magnetization Jeferson de Souza, Department of Geology, Federal University of Paraná and Paraná State Secretary of Education; Saulo P. Oliveira, Department of Mathematics, Federal University of Paraná; and Francisco J.F. Ferreira, Department of Geology, Federal University of Paraná (INT. AUD.: 3)
Speaker: Jeferson de Souza
10:10 AM ... Enhancing and sharpening the migration images of gravity field and its gradients Xiaolei Tu, CEMI, University of Utah; and Michael S. Zhidanov, CEMI, University of Utah, and Technolmaging (INT. AUD.: 2)
Speaker: Tu Xiaolei
10:35 AM ... Understanding the influence of different forms of prior information in gravity gradiometry imaging of a salt body Elizabeth Maag-Capriotti and Yaoguo Li, Center for Gravity, Electrical, and Magnetic Studies, Department of Geophysics, Colorado School of Mines (INT. AUD.: 3)
Speaker: Elizabeth Maag-Capriotti
11:00 AM ... Estimative of gravity-gradient tensor components via fast iterative equivalent-layer technique Larissa S. Piauilino, Filipe C. L. Siqueira, Vanderlei C. Oliveira Jr., and Valeria C. F. Barbosa, Observatorio Nacional (INT. AUD.: 4)
Speaker: Larissa Piauilino
11:25 AM ... 3D joint inversion of airborne gravity gradiometry and magnetic data: A case study from Budgell Harbour Stock in northern-central Newfoundland, Canada Meixia Geng, Institute of Geophysics and Geomatics, China University of Geosciences, Wuhan; and J. Kim Welford, Colin G. Farquharson, and Alexander L. Peace, Department of Earth Sciences, Memorial University of Newfoundland (INT. AUD.: 3)
Speaker: Meixia Geng
Tuesday, 17 September 2019
INT 2 Applications of Machine Learning and Inversion
Session Chairs: Sumit Verma and Xinming Wu
Location: 221B
Synopsis: Direct application of machine-learning techniques for inversion, facies interpretation, and attribute analysis.

8:30 AM...... Nonparallelism attributes and data adaptive Kuwahara image processing Jie Qi and Kurt Marfurt, The University of Oklahoma (INT. AUD.: 3) Speaker: Jie Qi
8:55 AM...... Seismic attribute selection for machine learning based facies analysis Jie Qi, Thang Ha, Bin Lyu, David Lobo-Robles, and Kurt Marfurt, The University of Oklahoma (INT. AUD.: 3) Speaker: Jie Qi
9:20 AM...... Broadband elastic impedance variation with angle cascade inversion for fluid discrimination Yurong Wang, Zhaoyun Zong, Kun Li, Guansen Cheng, and Man Jiang, China University of Petroleum (East China) (INT. AUD.: 3) Speaker: Wang Yurong
9:45 AM...... Facies classification with weak and strong supervision: A comparative study Yazeed Alaudah, Moamen Soliman, and Ghassan AlRegib, Georgia Institute of Technology (INT. AUD.: 2) Speaker: Yazeed Alaudah
10:10 AM ... Dynamic matching pursuit based on optimized local frequency constraints Lu Xu, China University of Petroleum, Shandong; Xingyao Yin, School of Geosciences, China University of Petroleum; and Zhaoyun Zong and Kun Li, China University of Petroleum, Shandong (INT. AUD.: 5) Speaker: Lu Xu
10:35 AM ... Interpretation-based full waveform inversion of a Western Australian data set David Graham, David Lumley, and Wei Zhou, University of Texas at Dallas; Jeffrey Shragge, Colorado School of Mines; and Julien Bourget, University of Western Australia (INT. AUD.: 2) Speaker: David Graham
11:00 AM ... Orientation estimate of 3D seismic events using dynamic programming Bo Zhang, Yihui Lou, and Hao Wu, the University of Alabama (INT. AUD.: 3) Speaker: Yihui Lou
11:25 AM ... Depth domain pre-stack seismic inversion with depth and angle variant wavelets Rui Zhang, University of Louisiana at Lafayette; and Zhiven Deng, BGP Inc. (INT. AUD.: 3) Speaker: Rui Zhang

Tuesday, 17 September 2019
MLDA 2 Interpretation 1
Session Chairs: Fantine Huot and Ehsan Zabihi Naeini
Location: 221C
Synopsis: Application of machine learning for interpreting geological objects

8:30 AM...... Relative geologic time estimation using a deep convolutional neural network Zhicheng Geng, Xinming Wu, Yunzhi Shi, and Sergey Fomel, The University of Texas at Austin (INT. AUD.: 3) Speaker: Zhicheng Geng
8:55 AM...... Does shallow geological knowledge help neural-networks to predict deep units? Bas Peters and Eldad Haber, University of British Columbia, Vancouver, Canada; Justin Granek, Computational Geosciences Inc. (INT. AUD.: 3) Speaker: Bas Peters
9:20 AM...... Interactive tracking of seismic geobodies using deep learning flood-filling network Yunzhi Shi and Xinming Wu, The University of Texas at Austin (INT. AUD.: 3) Speaker: Yunzhi Shi
9:45 AM...... Multivariate attribute selection in seismic facies classification Yuji Kim, Robert Hardisty, and Kurt Marfurt, University of Oklahoma (INT. AUD.: 3) Speaker: Yuji Kim
10:10 AM ... Predicting gas production using machine learning methods: A Case Study Tania Mukherjee, Stonebridge Consulting; Thomas Burgett, Jonah Energy; Telha Ghanchi, Stonebridge Consulting; Colleen Donegan, Jonah Energy; Taylor Ward, Jonah Energy (INT. AUD.: 3) Speaker: Telha Ghanchi
10:35 AM ... Semi-automated seismic horizon interpretation using encoder-decoder convolutional neural network Hao Wu and Bo Zhang, University of Alabama (INT. AUD.: 3) Speaker: Hao Wu
11:00 AM ... Analysis of seismic and texture attributes for stratigraphic segmentation Rodrigo S. Ferreira and Julia Noce, IBM Research; Marco Ferraz, Galp; Matheus Oliveira and Emilio Vital Brazil, IBM Research; Sérgio Cersosimo, Galp; and Renato Cerqueira, IBM Research (INT. AUD.: 3) Speaker: Rodrigo Ferreira
11:25 AM ... Supervised seismic facies classification using probabilistic neural networks: Which attributes should the interpreter use? David Lobo-Robles, Thang Ha, S. Lakshmivarahan, and Kurt J. Marfurt, The University of Oklahoma (INT. AUD.: 3) Speaker: David Lobo-Robles
Tuesday, 17 September 2019
MLDA 3 Seismic Inversion 1
Session Chairs: Winston Lewis and Weichang Li
Location: 221D
Synopsis: Machine learning in poststack, prestack seismic inversion, and FWI

8:30 AM...... Estimating the inverse Hessian for amplitude correction of migrated images using deep learning Harpreet Kaur, Nam Pham, and Sergey Fomel, The University of Texas at Austin (INT. AUD.: 5)
Speaker: Harpreet Kaur
8:55 AM...... Pre-stack target-oriented least squares RTM in image domain using conjugate Hopfield networks and the Boltzmann machine Janaki Vamaraju, Zeyu Zhao, and Mrinal K. Sen, UTIG – The University of Texas at Austin (INT. AUD.: 3)
Speaker: Janaki Vamaraju
9:20 AM...... ML-descent: An optimization algorithm for FWI using machine learning Bingbing Sun and Tariq Alkhalifah, King Abdullah University of Science and Technology (INT. AUD.: 2)
Speaker: Bingbing Sun
9:45 AM...... Semi-supervised learning for acoustic impedance inversion Motaz Alfarraj and Ghassan AlRegib, Center for Energy and Ge Processing (CeGP), Georgia Institute of Technology (INT. AUD.: 2)
Speaker: Motaz Alfarraj
10:10 AM ... Deep learning with cross-shape deep Boltzmann machine for pre-stack inversion problem Son Phan and Mrinal Sen, Institute for Geophysics, The University of Texas at Austin (INT. AUD.: 4)
Speaker: Son Phan
10:35 AM ... A deep learning approach for acoustic FWI with elastic data Dongzhuo Li, Stanford University; Fuchun Gao and Paul Williamson Total EP Research and Technology (INT. AUD.: 2)
Speaker: Dongzhuo Li
11:00 AM ... Using FWI and deep learning to characterize velocity anomalies in crosswell seismic data Wenyuan Zhang and Robert Stewart, University of Houston (INT. AUD.: 4)
Speaker: Wenyuan Zhang
11:25 AM ... Deep learning network optimization and hyper-parameter tuning Michael Jervis, Saudi Aramco; Mingliang Liu, University of Wyoming; Weichang Li, Aramco Services Co.; and Robert Smith, Saudi Aramco (INT. AUD.: 4)
Speaker: Michael Jervis

Tuesday, 17 September 2019
NS 2 Engineering Geophysics
Session Chairs: Douglas Crice and Steven Sloan
Location: 217C
Synopsis: Applications of subsurface characterization and anomaly detection using near-surface geophysical methods.

8:30 AM...... Errors in geophysical parameters incorporated simultaneously in in-situ SWCC inversion: Improved slope stability analyses Atsushi Suzuki and Shohei Minato, OYO Corporation and Delft University of Technology; and Ranajit Ghose, Delft University of Technology (INT. AUD.: 3)
Speaker: Shohei Minato
8:55 AM...... Effects of near-surface spatial variability of soil stiffness on surface wave dispersion Siavash Mahvelati, Joseph Thomas Coe, and Alireza Kordjazi, Temple University (INT. AUD.: 3)
Speaker: Joseph Coe
9:20 AM...... Evaluation of near-surface anomalous conditions beneath drilled shaft excavations using full waveform inversion Alireza Kordjazi, Joseph Thomas Coe, and Siavash Mahvelati, Temple University (INT. AUD.: 3)
Speaker: Alireza Kordjazi
9:45 AM...... Shallow tunnel detection using converted surface wave imaging Shelby L. Peterie, Julian Ivanov, Richard D. Miller, Erik P. Knippel, and Anthony M. Hoch, Kansas Geological Survey; and Steven D. Sloan, U.S. Army Engineer Research Development Center (INT. AUD.: 3)
Speaker: Erik Knippel
10:10 AM ... Efficient tunnel detection with waveform inversion of back-scattered surface waves Yao Wang, Department of Mathematics, University of Kansas; and Georgios P. Tsouflias, Department of Geology, University of Kansas. (INT. AUD.: 2)
Speaker: Georgios Tsouflias
10:35 AM ... Near-surface void detection in karst terrain using first arrival tomography Daniel Z. Feigenbaum, Steven D. Sloan, Erin P. Simpson, Wilson E. Coronel, and James B. Smith, U.S. Army Engineer Research and Development Center (INT. AUD.: 3)
Speaker: Daniel Feigenbaum
11:00 AM ... Multi-mode analysis to improve diffraction enhancement void detection capabilities Anthony M. Hoch, Julian Ivanov, Shelby L. Peterie, and Richard D. Miller, Kansas Geological Survey (INT. AUD.: 2)
Speaker: Anthony Hoch
11:25 AM ... Detection of Karst cavity beneath cast-in-place pile based on instantaneous phase analysis Liu Liu, Department of Geotechnical Engineering, Tongji University and Department of Geology, The University of Kansas; Zhenming Shi, Department of Geotechnical Engineering, Tongji University; George P. Tsouflias, Department of Geology, The University of Kansas; Ming Peng, Department of Geotechnical Engineering, Tongji University; Chengcheng Liu, Department of Physical Science and Engineering, Tongji University; and Fengjuan Tao, Department of Geotechnical Engineering, Tongji University (INT. AUD.: 4)
Speaker: Liu Liu

Members-only breakfast: Meet, Eat, and Greet
Wednesday, 8:00 AM–10:00 AM
Convention Center, Room 220
Join us for this casual breakfast including free mimosas and bloody marys!
Tuesday, 17 September 2019
RC 2 Inversion and Integrated Studies
Session Chairs: Rodrigo Bastidas and Arcangelo Sena
Location: 217A
Synopsis: From proven techniques in case studies to innovative applications: This session illustrates the breadth and usefulness of a range of inversion methods.

8:30 AM...... On the rock physics basis for seismic hydrocarbon detection
Lian Jiang and John P. Castagna, Department of Earth and Atmospheric Sciences, University of Houston (INT. AUD.: 3)
Speaker: Lian Jiang

8:55 AM...... Near offsets stack inversion: An example for high density acquisition seismic data
Ma Yuehua, Li Hongge, Li Yuhai, Li Zhenyong, Sun Jian, and Liu Ziwei, BGP, CNPC (INT. AUD.: 3)
Speaker: Ma Yuehua

9:20 AM...... Spectral extrapolation and acoustic inversion for the characterization of an ultra-thin reservoir
Gorka Garcia Leiceaga and Charles Puryear, Multi-Physics Technologies (INT. AUD.: 3)
Speaker: Gorka Garcia Leiceaga

9:45 AM...... AVA deterministic, stochastic and wave-equation based seismic inversion for the characterization of fluvio-deltaic gas reservoirs of Western Australia
Arturo Contreras, Andre Gerhardt, Paul Christiaan Spaans, and Mathew Docherty, Woodside Energy LTD (INT. AUD.: 4)
Speaker: Arturo Contreras

10:00 AM... Hydrocarbon prediction from seismic elastic inversion using general Poisson dampening factor
Lei Wang and Xi Zheng, Research Institute of Petroleum Exploration & Development-Northwest (NWGI) Petrochina (INT. AUD.: 3)
Speaker: Wang Lei

10:35 AM... Reservoir characterization through seismic inversion: A case study
Binode Chetia, J. Nagarinji, Subhash K. Sharma, and Anand Kumar, ONGC (INT. AUD.: 3)
Speaker: Binode Chetia

11:00 AM... Stochastic inversion for seismic reservoir characterization with Ocean Bottom Node data: Deepwater Gulf of Mexico case study
Samarjit Chakraborty, Will Dugat, Stan Davis, Sara Grant, Matt Hughes, Anya Reitz, and Kenneth Gullette, BP (INT. AUD.: 3)
Speaker: Samarjit Chakraborty

11:25 AM... Seismic inversion method based on constraint of instantaneous phase
Song Pei, Xingyao Yin, and Kun Li, China University of Petroleum (INT. AUD.: 2)
Speaker: Song Pei

Tuesday, 17 September 2019
RP 2 Poroelasticity
Session Chairs: Yang Wang and Zhengwei Xu
Location: 305
Synopsis: Session covers topics containing discussions on poroelastic evolution and constraints on fluid flow.

8:30 AM...... Variation in the dynamic shear modulus at saturation for synthetic clay-rich tight sandstones
Dongqing Li, Sinopec Geophysical Research Institute, Nanjing and State Key Laboratory of Petroleum Resources and Prospecting, China University of Petroleum (Beijing); Jianxin Wei, Bangrang Di, Pinbo Ding, and Da Shuai, State Key Laboratory of Petroleum Resources and Prospecting, China University of Petroleum (Beijing) (INT. AUD.: 5)
Speaker: Li Dongqing

8:55 AM...... A new approach to petro-elastic modeling in carbonate reservoir using extended pore space stiffness method, Central Luconia, Sarawak, Malaysia
Amir Babasafari and Deva Ghosh, Center of Seismic Imaging, Universiti Teknologi PETRONAS; Hammad Janjua, American University of Beirut; Yaseen Al-Hashish and Ahmed Mohamed Ahmed Sabir, Center of Seismic Imaging, Universiti Teknologi PETRONAS; and Sayed Hesam Kazemeini, AlphaReservoir Plus (INT. AUD.: 4)
Speaker: Amir Babasafari

9:20 AM...... Permeability estimation using pore geometry analysis and percolation theory in carbonates
Pedro C. de Assis, Reservoir Inference Group, Universidade Estadual do Norte Fluminense; and Fernando S. Moraes, Reservoir Inference Group, Universidade Estadual do Norte Fluminense, and National Institute of Science and Technology for Petroleum Geophysics (INCT-GP/CNPq) (INT. AUD.: 4)
Speaker: Pedro Assis

9:45 AM...... Effect of pore aspect ratio spectrum on ultrasonic velocities of tight sandstones saturated with different fluids
Xi Han, Genyong Tang, Yanxiao He, Chunhui Dong, Min Li, and Shangxu Wang, China University of Petroleum (Beijing) (INT. AUD.: 3)
Speaker: Xi Han

10:10 AM... Numerical study of dispersion and attenuation caused by squirt flow
Yury Alkhimenkov and Eva Caspary, University of Lausanne, Switzerland; Nicolás D. Barbosa, University of Geneva, Switzerland; Stanislav Glubokovskikh, Boris Gurevich, Curtin University, Australia; and Beatriz Quintal, University of Lausanne, Switzerland (INT. AUD.: 5)
Speaker: Yury Alkhimenkov

10:35 AM... Pore structure characterization based on joint numerical and experimental study: A case study of Nanpu sag
Li Haitao, Deng Shaogui, Hu Xuefei, Yuan Xiyong, and Zhang Pan, School of Geosciences, China University of Petroleum (East China) (INT. AUD.: 3)
Speaker: Haitao Li

11:00 AM... A novel pore pressure prediction model based on rock physical experiment
Wang Bin, Pan Jianguo, Zhang Huquan, Yin Lu, and Teng Tianyu, Northwest Branch of Research Institute of Petroleum Exploration & Development, CNPC (INT. AUD.: 3)
Speaker: Wang Bin

11:25 AM... Linking preferred orientation of shale minerals to their elasticity
Venkatesh Anantharamu and Lev Vernik, Ikon Science Americas Inc., Houston (INT. AUD.: 3)
Speaker: Venkatesh Anantharamu
Tuesday, 17 September 2019
SM 2 Acoustic, Visco-acoustic and VTI Modeling
Session Chairs: Kenneth Bube and Mrinal Sen
Location: 304A
Synopsis: Modeling algorithms focused on anisotropy and attenuation.

8:30 AM..... Modeling of viscoacoustic wave propagation in transversely isotropic media using decoupled fractional Laplacians
Zhihao Qiao and Chengyu Sun, China University of Petroleum (INT. AUD.: 3)
Speaker: Joe Zhihao

8:55 AM..... Compensating time-stepping error in fractional Laplacians viscoacoustic wavefield modeling
Ning Wang, State Key Laboratory of Petroleum Resources and Prospecting, CNPC Key Lab of Geophysical Exploration, China University of Petroleum, Beijing, and Department of Geoscience and Institute of Natural Gas Research, Pennsylvania State University; Hui Zhou, State Key Laboratory of Petroleum Resources and Prospecting, CNPC Key Lab of Geophysical Exploration, China University of Petroleum, Beijing, and Department of Geoscience, Pennsylvania State University (INT. AUD.: 5)
Speaker: Ning Wang

9:20 AM..... Accurately propagating P- and S-waves in attenuation media using spatial-independent-order decoupled fractional Laplacians
Ning Wang, Department of Geoscience, Pennsylvania State University, and State Key Laboratory of Petroleum Resources and Prospecting, CNPC Key Lab of Geophysical Exploration, China University of Petroleum, Beijing; and Guangchi Xing and Tieyun Zhu, Department of Geoscience, Pennsylvania State University (INT. AUD.: 5)
Speaker: Ning Wang

9:45 AM..... Fractional Laplacian visco-acoustic wave equation temporal extrapolation using a staggered-grid low-rank method
Shuqi Jiang, Hangming Chen, Hui Zhou, Hua Huang, Chuntao Jiang, and Mingzhu Zhang, China University of Petroleum (Beijing) (INT. AUD.: 3)
Speaker: Shuqi Jiang

10:10 AM ... High temporal accuracy viscoacoustic wave modeling in vertically transverse isotropic media based on low-rank decomposition
Yabing Zhang, State Key Laboratory of Petroleum Resources and Prospecting, China University of Petroleum (Beijing), and CNPC Key Laboratory of Geophysical Prospecting, China University of Petroleum (Beijing); Yang Liu, State Key Laboratory of Petroleum Resources and Prospecting, China University of Petroleum (Beijing), and CNPC Key Laboratory of Geophysical Prospecting, China University of Petroleum (Beijing); and Shigang Xu, State Key Laboratory of Petroleum Resources and Prospecting, China University of Petroleum (Beijing), and CNPC Key Laboratory of Geophysical Prospecting, China University of Petroleum (Beijing) (INT. AUD.: 3)
Speaker: Yabing Zhang

10:35 AM ... A 3D pseudo-spectral method for qP- and qSV- wave simulation in heterogeneous VTI media
Junxiao Li, Huaizhen Chen, and Kristopher A. Innanen, University of Calgary; and Guo Tao, Khalifa University (INT. AUD.: 3)
Speaker: Junxiao Li

11:00 AM ... Computing fractional Laplacian visco-acoustic wave equation using Grünwald-formula based radial basis collocation method
Yiran Xu, China University of Petroleum—Beijing; CNPC Keylab of Geophysical Prospecting; Jinge Li, CNPC Keylab of Geophysical Prospecting; Guofei Pang, Brown University; and Xiaohong Chen, CNPC Keylab of Geophysical Prospecting (INT. AUD.: 5)
Speaker: Xu Yiran

11:25 AM ... Wave propagation characteristics using advanced modelling algorithm for D-Data imaging
Yasir Bashir, Deva Prasad Ghosh, and Amir Babasafari, Center of Excellence in Subsurface Seismic Imaging & Hydrocarbon Prediction, Universiti Teknologi PETRONAS, Malaysia (INT. AUD.: 3)
Speaker: Yasir Bashir

OPENING SESSION AND PRESIDENTIAL ADDRESS

Don’t miss Dr. James Reilly, Director of the US Geological Survey, as he presents the keynote, “The Evolution of Unconventional Play Analysis at the USGS” Monday morning at 8:30 AM.
Tuesday, 17 September 2019
SPMI 2 Least Squares Migration Improvement and Applications 1
Session Chairs: Michael Cogan and Bin Wang
Location: 214C
Synopsis: Image-domain least square migration improvements with an emphasis on the amplitude fidelity of LSM gathers.

8:30 AM...... Least-squares migration with gathers A.A. Valenciano, M. Orlovich, E. Klochkikina, and N. Chemingui, PGS (INT. AUD.: 3)  
Speaker: Alejandro Valenciano

8:55 AM...... A practical least-squares Kirchhoff Q migration workflow and its application to Celtic Sea imaging Cheng Cheng, Yang He, Zhaojun Liu, and Bin Wang, TGS (INT. AUD.: 3)  
Speaker: Cheng Cheng

9:20 AM...... Amplitude preserving migration through extended acoustic least-squares RTM Ettore Biondi, Stanford University; Mark Meadows, Chevron Energy Technology Company; and Biondo Biondi, Stanford University (INT. AUD.: 3)  
Speaker: Ettore Biondi

9:45 AM...... Visco-acoustic least-squares reverse time migration in TTI media and application to OB data Sidin, Henning Kuehl, and Michael Kiehn, Shell International E&P; Rene-Edward Plessix, Shell Global Solutions International; and Martina Wittmann-Hohlbein, Shell Information Technology International (INT. AUD.: 3)  
Speaker: Sidin

10:10 AM...... Angle- and azimuth-dependent least-squares reverse-time migration Eric Duveneck, Shell Global Solutions International; Anu Chandran, Thomas Kühnel, Michael Kiehn, and Jonathan Sheiman, Shell International Exploration and Production; Henk Vocks, Shell Global Solutions International; Henning Kuehl, Shell Global Solutions Canada; Fons ten Kroode, Shell Global Solutions International (INT. AUD.: 3)  
Speaker: Eric Duveneck

10:35 AM...... Angle-dependent and angle-independent least-squares reverse-time migration (LSRTM) - Case studies Thomas Kühnel and Michael Kiehn, Shell International Exploration and Production; Eric Duveneck, Shell Global Solutions International; Bruce Strawn, Dung Nguyen, Anu Chandran, and Farhad Bazargani, Shell International Exploration and Production; Richard Palmer, Shell Global Solutions US, Thomas Rayburn, Shell Information Technology International; Mandy Wong, Shell Exploration and Production Company; and Siyang Yang, Shell Global Solutions US (INT. AUD.: 3)  
Speaker: Thomas Kuehnel

11:00 AM...... Approximate Least Squares RTM via matching filters and regularized inversion Vincenzo Lipari and Francesco Picetti, Politecnico di Milano; Jacopo Panizzardi and Nicola Bienti, Eni; Stefano Tobar, Politecnico di Milano (INT. AUD.: 3)  
Speaker: Francesco Picetti

11:25 AM...... Least-squares reverse time migration with random space shift Jizhong Yang and Yunyue Elita Li, National University of Singapore; and Yuzhu Liu, Tongji University (INT. AUD.: 4)  
Speaker: Jizhong Yang

Tuesday, 17 September 2019
SPMNR 1 Data Conditioning and Noise Removal
Session Chairs: Peter Aaron and Gary Hampson
Location: 304B
Synopsis: Methods and case study results on a broad range of topics from data sampling to image enhancements.

8:30 AM...... Compressive sensing seismic processing tests on a high density blended land data set Tao Jiang, Peter Eick, and Yifeng Jiang, In-Depth Compressive; Tianjiang Li, Haibo Hao, and Wensheng Chu, In-Depth Geophysical; Robert Holt, Dustin Blymyer, Klaas Koster, and Donnie Enns, Occidental Petroleum Corporation (INT. AUD.: 3)  
Speaker: Tao Jiang

8:55 AM...... Use of a geological model and elastic forward modeling to identify and remove salt-related noises Jun Tang, Chengbin Peng, Michael O’Brien, and Chung-Chi Shih, Schlumberger (INT. AUD.: 1)  
Speaker: Jun Tang

9:20 AM...... Data- and prior-driven sampling and wavefield reconstruction for sparse, irregularly-sampled, higher-order gradient data Jingming Ruan and Ivan Vasconcelos, Utrecht University (INT. AUD.: 3)  
Speaker: Ivan Vasconcelos

9:45 AM...... Creating a sharper image: merging multiple seismic images with noise attenuation Jane Shoujian Huang and Yue Tian, Chevron Energy Technology Company (INT. AUD.: 1)  
Speaker: Jane Shoujian Huang

10:10 AM...... An acceleration method for the anti-leakage parabolic Radon transform for seismic data interpolation Yaniv Hollander and Orhan Yilmaz, Emerson E&P (INT. AUD.: 4)  
Speaker: Yaniv Hollander

Speaker: Francesco Perrone

11:00 AM...... Low frequency de-noising using high frequency prediction error filters Milad Bader, Robert Clapp, and Biondo Biondi, Stanford University (INT. AUD.: 3)  
Speaker: Milad Bader

11:25 AM...... Microseismic and seismic noise attenuation by supervised deep learning with noisy natural images Chao Zhang and Mirko van der Baan, Department of Physics, University of Alberta, Canada (INT. AUD.: 3)  
Speaker: Chao Zhang
Tuesday, 17 September 2019
SS 3 SEG/AGU Hydrogeophysics
Session Chairs: Niels Grobbe and Damien Jougnot
Location: 301B
Synopsis: This session highlights papers on the application of near-surface geophysics to hydrologic problems, using various methodologies.

8:30 AM..... Siting a horizontal well with electrical resistivity tomography to extend production in a depleting aquifer John Jansen and Nicole Pendrigh, Collier Geophysics (INT. AUD.: 3)
Speaker: Nicole Pendrigh

8:55 AM..... Fast estimation of permeability in sandstones by 3D convolutional neural networks Siyan Liu and Reza Barati, Dept. of Chemical & Petroleum Engineering, University of Kansas; and Chi Zhang, Dept. of Geology, University of Kansas (INT. AUD.: 3)
Speaker: Siyan Liu

9:20 AM..... Multidisciplinary approach to hydrogeology: Tracers to temporal gravity surveys William E. Sanford, Dennis L. Harry, Michael Ronayne, and Matthew Sturdivant, Department of Geosciences, Colorado State University (INT. AUD.: 4)
Speaker: William Sanford

9:45 AM..... Monitoring groundwater level variations using ballistic waves reconstructed from seismic noise in an urban water field: A combination of experimental and numerical approaches Stéphane Garambois, Christophe Voisin, and Maria Alejandra Romero Guzman, Université Grenoble Alpes, Univ. Savoie Mont Blanc, CNRS, IRD, IFSTTAR, ISTerre, UMR 5275; and Daniel Brito, Univ. de pau et des Pays de l’Adour, /TOTAL/CNRS, Laboratoire des Fluides Complexes et leurs Réserveurs - IPRA, UMR 5150 (INT. AUD.: 2)
Speaker: Stéphane Garambois

10:10 AM... Heat and groundwater transport between the Antarctic Ice Sheet and subglacial sedimentary basins from electromagnetic geophysical measurements Bernd Kulessa, Swansea University, UK; Kerry Key, Columbia University, USA; Sarah Thompson, University of Tasmania, Australia; and Martin Siegert, Imperial College London, UK (INT. AUD.: 3)
Speaker: Bernd Kulessa

10:35 AM ... Improving pore-size distribution and permeability prediction from NMR using DT, maps Kristina Keating, Judy Robinson, Lee Slater, and Tonian Robinson, Rutgers University, New York; and Beth Parker, University of Guelph (INT. AUD.: 3)
Speaker: Kristina Keating

11:00 AM ... Investigating water storage in a shale bedrock vadose zone in a montane conifer forest, Slate River, Colorado Zachary Mungia, Brandon Minton, Logan Schmidt, and Daniella Rempe, The University of Texas at Austin; and Jesse Hahn, University of California Berkeley (INT. AUD.: 2)
Speaker: Zachary Mungia

11:25 AM ... Combined first arrival, Rayleigh wave, and P-SV converted wave analysis for improved hydrologic characterization James St. Clair and Lee Liberty, Department of Geosciences, Boise State University (INT. AUD.: 3)
Speaker: James St. Clair

Tuesday, 17 September 2019
SS 4 DAS, Borehole and Microseismic Geophysics for Unconventionals
Session Chairs: Martin Karrenbach and Michel Verliac
Location: 303B
Synopsis: Multiple technologies and cases for improving unconventional reservoir performances.

8:30 AM..... Observations and modeling of scattered waves from hydraulic fractures in a DAS VSP experiment in the Permian Basin Aleksei Titov, Gary Binder, Youfang Liu, James Simmons, and Ali Tura, Colorado School of Mines; and Grant Byerley and David Monk, Apache Corporation (INT. AUD.: 3)
Speaker: Aleksei Titov

8:55 AM..... Detecting hydraulic fracture induced velocity change using rapid time-lapse DAS VSP Ran Zhou, Mark E. Willis, and William Palacios, Halliburton (INT. AUD.: 3)
Speaker: Ran Zhou

9:20 AM..... Detecting microseismic events in downhole distributed acoustic sensing data using convolutional neural networks Gary Binder and Dwaiayapan Chakraborty, Colorado School of Mines (INT. AUD.: 3)
Speaker: Gary Binder

9:45 AM..... The significance of gauge length in particle velocity estimation from DAS data: VSP and microseismic cases Takashi Mizuno, Scott Leaney, Joel Le Calvez, Farhan Naseer, and Manish Lal Khaitan, Schlumberger (INT. AUD.: 3)
Speaker: Takashi Mizuno

10:10 AM ... High-resolution distributed acoustic sensor using engineered fiber for hydraulic fracture monitoring and optimization in unconventional completions Peter Richter, Tom Parker, Craig Woerpel, Wenxia Wu, Rogelio Rufino, and Mahmoud Farhadiroshan, Silixa Ltd. (INT. AUD.: 3)
Speaker: Mahmoud Farhadiroshan

10:35 AM ... Detection of microseismic events from borehole and surface data towards a common catalog Stine Gutjahr, Ivan Abakumov, and Serge A. Shapiro, Freie Universität Berlin (INT. AUD.: 3)
Speaker: Stine Gutjahr

11:00 AM ... The importance of 3D models to assess the impact of induced seismicity and ground vibrations Doug Angus, ESG Solutions; and Mansuy Thomas, University of Leeds (INT. AUD.: 3)
Speaker: Doug Angus

11:25 AM ... Estimating permeability from hydraulic fracturing induced microseismicity Himanshu Barthwal and Mirko van der Baan, University of Alberta, Canada (INT. AUD.: 3)
Speaker: Himanshu Barthwal
Tuesday, 17 September 2019
SVE 1 New Methods on Velocity Analysis
Session Chairs: Derek Quigley and Zhiguang Xue
Location: 217B
Synopsis: These papers present developments on new approaches for subsurface velocity model estimation, including tackling problems in waveform inversion and migration velocity analysis.

8:30 AM...... 3D receiver-domain full traveltine inversion Lu Liu and Yi He, Aramco Beijing Research Center, Aramco Asia; Yi Luo, EXPEC Advanced Research Center, Saudi Aramco (INT. AUD.: 3)
Speaker: Lu Liu

8:55 AM...... Procedural strategies for depth-migration velocity analysis by image-wave propagation in common-image gathers Peter A. P. Machado, DEP/FEM/Unicamp; and Amélia Novais and Jörg Schleicher, IMECC/Unicamp & INCT-GP (INT. AUD.: 3)
Speaker: Peter Machado

9:20 AM...... A modified differential semblance optimization with quantitative true-amplitude one-way wave equation Zhennan Yu, State Key Laboratory of Petroleum Resources and Prospecting, China University of Petroleum (Beijing), and CNPC Key Laboratory of Geophysical Prospecting, China University of Petroleum (Beijing); Yang Liu, State Key Laboratory of Petroleum Resources and Prospecting, China University of Petroleum (Beijing), CNPC Key Laboratory of Geophysical Prospecting, China University of Petroleum (Beijing), Karamay Campus; and Yuzhao Lin, China University of Petroleum (East China) (INT. AUD.: 3)
Speaker: Zhennan Yu

9:45 AM...... WEMWA based on source to image point offsets Mark Roberts, Spectrum Geo (INT. AUD.: 4)
Speaker: Mark Roberts

10:10 AM...... 3D RTM-based wave path tomography: Workflow and application Harry Rynja, Peter Bakker, Fons ten Kroode, and Chris Haneveld, Shell Global Solutions International BV; Tadas Krupovnickas, Shell International Exploration and Production Inc.; Nigel Mitchell, Shell Global Solutions International BV; and Sijmen Gerritsen, Shell International Exploration and Production Inc. (INT. AUD.: 3)
Speaker: Harry Rynja

10:35 AM...... Separation of scales in FWI and RFWI: The First Fresnel zone seen from an angle François Audebert and Daniel Ortiz-Rubio, Total EP, France (INT. AUD.: 5)
Speaker: François Audebert

11:00 AM...... Joint migration inversion continuous equations and discretized solution via multiparameter Gauss-Newton method C. A. M. Assis, CEP/UNICAMP & INCT-GP; Y. Pan, Karlsruhe Institute of Technology; J. Schleicher, IMECC/Unicamp & INCT-GP; T. Bohlen, Karlsruhe Institute of Technology; and H. B. Santos, CEP/UNICAMP & INCT-GP (INT. AUD.: 3)
Speaker: Carlos André Martins De Assis

11:25 AM...... Machine learning algorithms for automatic velocity picking: K-means vs. DBSCAN Umair bin Waheed, College of Petroleum Engineering and Geosciences, King Fahd University of Petroleum and Minerals; Saleh Al-Zahrani, Arabian Geophysical and Surveying Company; and Sherif M. Hanafy, College of Petroleum Engineering and Geosciences, King Fahd University of Petroleum and Minerals (INT. AUD.: 2)
Speaker: Umair Bin Waheed

Tuesday, 17 September 2019
TL 2 Case Studies
Session Chairs: Paul Hatchell and Shauna Oppert
Location: 225B
Synopsis: The Case Studies papers demonstrate applications of time lapse data sets for monitoring saturation and pressure changes in the subsurface. Each focuses on cutting edge or new technologies developed to address surveillance challenges in the specific fields highlighted.

8:30 AM...... From feasibility to reservoir characterization: A fully integrated 4D seismic approach for reservoir management — A case study in the western African offshore Bruce Webb, Catia Rizzetto, Marco Marchesini, Nazzarena Colombi, Jacopo Panizzardi, Vincenzo Miluzzo, Andrea Cimitan, Ilario Franco, and Andrea Ottaviani, Eni; and Cyrille Reiser and Didier Lecerf, PGS (INT. AUD.: 3)
Speaker: Bruce Webb

8:55 AM...... Extract 4D signal from two streamer surveys with very different acquisition geometry by least-squares migration over Pyrenees fields Jun Cai, Guy Duncan, Angus Goody, and Kon Kostas, BHP Petroleum (INT. AUD.: 1)
Speaker: Jun Cai

9:20 AM...... Time-lapse imaging with joint least-squares migration Xuefeng Shang, Henning Kuehl, Michael Kiehn, Bruce Strawn, and Jonathan Sheiman, Shell International Exploration and Production; Kajian Liu, Shell Exploration and Production Company; and Fons ten Kroode, Shell Global Solutions International (INT. AUD.: 3)
Speaker: Xuefeng Shang

9:45 AM...... Fast-turnaround OBS time-lapse processing enabled by up/down deconvolution: A North Sea case study Richard Ford, Francesca Twynam, Philippe Caprioli, Michael Hooke, Richard Whitebread, Paal Kristiansen, and Daniele Boiero, WesternGeco; and Per-Eivind Dhelie, Vidar Danielsen, and Knut Richard Strath, Lundin Norway (INT. AUD.: 3)
Speaker: Richard Ford

10:10 AM...... Inversion of 4D seismic data for production facies Jeremy Gallop, Ikon Science Ltd. (INT. AUD.: 3)
Speaker: Jeremy Gallop

10:35 AM...... Maturing 4D DAS VSP for on-demand seismic monitoring in deepwater Denis Kiyashchenko, Yuting Duan, and Albena Mateeva, Shell International Exploration and Production, Inc.; Duane Johnson, Jonathan Pugh, and Axel Geisslinger, Shell Exploration and Production Company, Inc.; and Jorge Lopez, Shell Brazil Petróleo Ltda. (INT. AUD.: 3)
Speaker: Duane Johnson

11:00 AM...... A reduced-order basis approach for CO 2 monitoring from sparse time-lapse seismic data Badr W. Al-Rumaih and Jerry M. Harris, Stanford University (INT. AUD.: 3)
Speaker: Badr Al-Rumaih

11:25 AM...... Seismic evidence for transient elastic bracing in microbubble water and CO 2 injection zones Kristopher Albert Innenan, University of Calgary; Rie Kamei, MIT; Ayato Kato, CREWES / Japan Oil, Gas and Metals National Corp; and Malcolm Bruce Bertram and Donald Lawton, CREWES / University of Calgary (INT. AUD.: 3)
Speaker: Kristopher Albert Innenan
Tuesday, 17 September 2019
ACQ 3 Deblending and Sensors
Session Chairs: Kevin Werth and Stuart Wright
Location: 221A
Synopsis: Session includes papers on both marine and land simultaneous sourcing and deblending examples, plus innovative geophone technology.

1:50 PM...... Energy efficient architecture for wireless geophone networks
Speaker: Naveed Iqbal

2:15 PM...... Gradient recording in practice: A comparative field trial of a 5C land seismic gradient sensor
Speaker: Anastasia Poole and John Quigley, WesternGeco; Everhard Muyzer, Nihed Allouche, Pascal Edme and Nicolas Goujon, Schlumberger Cambridge Research

2:40 PM...... Blended acquisition with temporally signatred/modulated and spatially dispersed source array
Speaker: Tomohide Ishiyama, ADNOC; Mohammed Ali, Khalifa University; Gerrit Blacquiere and Shotaro Nakayama, Delft University of Technology

3:05 PM...... Land vibroseis data deblending in the presence of strong coherent noise
Speaker: C. Willacy, Z. Tang, Y. Ji and S. Tegtmeier-Last, Shell Global Solutions International B.V.; and A. Harthi, Petroleum Development Oman

3:30 PM...... Deblending by sparse inversion: Case study on land data from Oman
Speaker: Jiawen Song

3:55 PM...... Joint deblending of multiple seismic source types
Speaker: Kang Fu and Joe Dellinger, BP; and Ray Abma, BP retired

4:20 PM...... Source-over-cable marine acquisition with six sources in simultaneous mode
Speaker: Per Eivind Dhelie

4:45 PM...... Deblending of simultaneous and flip-flop shooting of sparse node long offset seismic for reflection FWI
Speaker: Himadri Pal

Tuesday, 17 September 2019
ANI 3 Applications 3
Session Chairs: Heloise Lynn and Leon Thomsen
Location: 217D
Synopsis: Papers related to practical applications including azimuthal anisotropy, fracture detection, and attribute analysis.

1:50 PM...... New anisotropic parameter to enhance lithology identification in Clastic reservoir
Speaker: Amir Babasafari and Deva Ghosh, Center of Seismic Imaging, Universiti Teknologi PETRONAS

2:15 PM...... AVAZ quantitative interpretation based on orthorhombic medium and its application in Sichuan Basin of China
Speaker: Kai Xu, Jilu University; Shixing Wang, Sinopec Geophysical Research Institute

3:05 PM...... Inversion of reservoir porosity and permeability based on velocity dispersion in 3D two-phase orthotropic crack medium
Speaker: Xianwen Zhang, CNOOC Research Institute Ltd.; Deli Wang, Jilin University; Fanying Fan, Jingyu Zhang, and Xin Du, CNOOC Research Institute Ltd.

3:30 PM...... Fracture prediction based on an improved anisotropy inversion: A shale reservoir fracture prediction case study
Speaker: Tongcui Guo and Hongjun Wang, Research Institute of Petroleum Exploration & Development, CNPC; Yueliang Guo, Jian Zhang, and Mingjun Jiang, CNODC; Pengyu Chen, and Xiangwen Kong, Research Institute of Petroleum Exploration & Development, CNPC

3:55 PM...... Correcting residual HTI moveout and determining principal anisotropic azimuth in arbitrarily sampled image gathers using dynamic time warping
Speaker: Qunshan Zhang, Repsol USA

4:20 PM...... Describing stress-dependent elasticity and wave propagation: New insights and connections between approaches
Speaker: Yanadet Sarpanich, formerly Utrecht University, presently PTT Exploration and Production Company Limited; Ivan Vasconcelos, Utrecht University; Jeroen Tromp, Princeton University; and Jeannot Trampert, Utrecht University

4:45 PM...... Study on impact factors of seismic wave frequency-dependent anisotropy in TI medium
Speaker: Yang Yahua
ORAL SESSIONS

Tuesday, 17 September 2019
DAS 2 VSP, Modeling and Imaging Approaches
Session Chairs: Eileen Martin and Ali Tura
Location: 221C
Synopsis: Advances in seismic or microseismic modeling and imaging, particularly VSP using DAS data.

1:50 PM...... Application of Walkaway-VSP based on joint observation by DAS and geophones in the Tarim Basin, northwest China
Cai Zhidong, BGP Inc., CNPC and China University of Geoscience, Beijing; Wang Shize and Liu Wei, BGP Inc., CNPC and Chengdu University of Technology; Li Fei, Wang Chong, and Ma Liuyi, BGP Inc., CNPC; and Li Qing, Tarim Oilfield Company, Petrochina (INT. AUD.: 3)
Speaker: Zhidong Cai

2:15 PM...... 2D controlled-source electromagnetic inversion using very fast simulated annealing algorithm
Piyoosh Jaysaval, Debanjan Datta, Minal K. Sen, and Adrien F. Arnulf, Institute for Geophysics, Jackson School of Geosciences, The University of Texas at Austin; and Bertrand Denel and Paul Williamson, Total E&P (INT. AUD.: 3)
Speaker: Piyoosh Jaysaval

2:40 PM...... Meshfree modelling of 3-D controlled-source EM data: A new method to treat the singular source terms
Jianbo Long* and Colin G. Farquharson, Memorial University of Newfoundland (INT. AUD.: 3)
Speaker: Colin G. Farquharson

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Tuesday, 17 September 2019
FWI 3 Cycle-skipping 2
Session Chairs: Dong Sun and Denes Vigh
Location: 225B
Synopsis: Mitigate cycle-skipping by utilizing Optimal Transport theory, phase, and traveltime inversion.

1:50 PM...... Assessment of optimal transport based FWI: 3D OBC Valhall case study A. Plady, R. Brossier, M. Iwnaka, and N. Kamath, Univ. Grenoble Alpes, ISterre; L. Metivier, Univ. Grenoble Alpes, ISterre and Univ. Grenoble Alpes, CNRS (INT. AUD.: 3)
Speaker: Arnaud Plady

2:15 PM...... Adaptive quadratic Wasserstein full-waveform inversion Diancheng Wang and Ping Wang, CGG (INT. AUD.: 3)
Speaker: Diancheng Wang

2:40 PM...... Stereo optimal transport of the matching filter Bingbing Sun and Tariq Alkhalifah, King Abdullah University of Science and Technology (INT. AUD.: 3)
Speaker: Bingbing Sun

3:05 PM...... Improving optimal transport based FWI through data normalization Yunan Yang, New York University; and Bjorn Engquist, The University of Texas at Austin (INT. AUD.: 3)
Speaker: Yunan Yang

3:30 PM...... Phase only reflection full-waveform inversion for high resolution model update Jian Mao, James Sheng, and Guy Hilburn, TGS (INT. AUD.: 3)
Speaker: Jian Mao

3:55 PM...... 3D elastic FWI for land seismic data: a graph space OT approach Weiguang He, Univ. Grenoble Alpes, ISterre, Grenoble, France; Romain Brossier, Isterre - Univ. Grenoble Alpes; and Ludovic Métivier, LJK (INT. AUD.: 3)
Speaker: Weiguang He

4:20 PM...... Joint FWI for imaging deep structures: A graph-space OT approach Yubing Li and Romain Brossier, Univ. Grenoble Alpes, ISterre, Ludovic Métivier, Univ. Grenoble Alpes, ISterre and Univ. Grenoble Alpes, CNRS (INT. AUD.: 3)
Speaker: Yubing Li

4:45 PM...... Computational aspects of traveltime inversion kernels for acoustic wave equations Houzhu (James) Zhang, Hong Liang, Yang Zhao and Hyounghu Baek, Aramco Services Company-Aramco Research Center – Houston. (INT. AUD.: 2)
Speaker: Houzhu Zhang

Tuesday, 17 September 2019
FWI 4 Case Studies
Session Chairs: Rie Kamei and Sheng Xu
Location: 302B
Synopsis: Success stories and lessons learned for different data types, acquisitions, and geological environments.

1:50 PM...... Application of full waveform inversion to land seismic data in Sichuan Basin, Southwest China Jianyong Song, Hong Cao, Zhifang Yang, and Xinhai Hu, Geophysical Department, Research Institute of Petroleum Exploration & Development, CNPC (INT. AUD.: 4)
Speaker: Song Jianyong

2:15 PM...... An application of reflection-based full-waveform inversion in Campeche deep-water region, Gulf of Mexico Zengbao Chen, Hao Deng, Hongyan Li, Yanwei Xue, Jianchun Dai, Michael O’Briain, Chung-Chi Shih, Daniel Smith, and Chuck Peng, Schlumberger (INT. AUD.: 3)
Speaker: Zengbao Chen

2:40 PM...... Resolving subsalt image in complex geology using localized reflection-based FWI and broadband processing Mohamed Hegazy, Olga Zdraveva, Ching Tu, Laura Jones, Stacey Buzzell, and Rebecca Bell, WesternGeco; Craig Barker and Ying Tan, Chevron Corporation (INT. AUD.: 3)
Speaker: Mohamed Hegazy

3:05 PM...... High resolution velocity and impedance estimation using refraction and reflection FWI: The Fortuna region, offshore Equatorial Guinea Ian F. Jones, Jeet Singh, and Johnny Chigbo, ION Geophysical; Philip Cox, Colin Hawke, and Dale Harger, Ophir Energy UK; and Stuart Greenwood, ION Geophysical (INT. AUD.: 3)
Speaker: Ian Jones

3:30 PM...... Illuminating Santos Basin's pre-salt with OBN data: Potential and challenges of FWI Florian Jouno, Adriano Martinez, Denis Ferreira, Daniela Donno, and Adel Khalil, CGG (INT. AUD.: 2)
Speaker: Florian Jouno

3:55 PM...... Compensating for visco-acoustic affects with an integrated model building flow: A deep water Equatorial Conjugate Margin case study T. Martin, M. Barbaray, G. Venfield, and V. Chavda, PGS (INT. AUD.: 3)
Speaker: Tony Martin

4:20 PM...... A strategy for regional-scale FWI in the salt provinces offshore Brazil Juergen Fruehn, Stuart Greenwood, Ross O’Driscoll, Ian Jones, and John Brittan, ION (INT. AUD.: 3)
Speaker: Juergen Fruehn

4:45 PM...... Enhanced imaging complex velocity and gas clouds with full-waveform inversion in the Taranaki Basin, New Zealand Yuelian Gong, Dominic Fell, Robert Hunn, Richard Bisley, Alexander Karvelas, and Bee Jik Lim, WesternGeco (INT. AUD.: 3)
Speaker: Yuelian Gong
There IS such a thing as free lunch!

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Tuesday, 17 September 2019
MLDA 4 Seismic Inversion 2
Session Chairs: Mauricio Araya and Sribharath Kainkaryam
Location: 221D
Synopsis: Machine learning in poststack, prestack seismic inversion, and FWI

1:50 PM...... Multilayer sparse LSM = deep neural network Zhaolun Liu and Gerard Schuster, King Abdullah University of Science and Technology (KAUST) (INT. AUD.: 3)
Speaker: Zhaolun Liu

2:15 PM...... Overcoming numerical dispersion of finite-difference wave extrapolation using deep learning Harpreet Kaur, Sergey Fomel, and Nam Pham, The University of Texas at Austin (INT. AUD.: 4)
Speaker: Harpreet Kaur

2:40 PM...... Geophysical data integration and machine learning for multi-target leakage estimation in geologic carbon sequestration Rafael Pires de Lima*, Los Alamos National Laboratory and The University of Oklahoma; and Youzuo Lin, Los Alamos National Laboratory (INT. AUD.: 3)
Speaker: Rafael Pires de Lima

3:05 PM...... Pre-stack seismic inversion using SeisInv-ResNet Jiameng Du, China University of Petroleum - Shandong (East); Junzhou Liu, Sinopec Research Institute; Guangzhi Zhang, China University of Petroleum - Shandong (East); Lei Han, Sinopec Research Institute; and Ning Li, China University of Petroleum - Shandong (East) (INT. AUD.: 3)
Speaker: Jiameng Du

3:30 PM...... Petrophysical properties prediction from pre-stack seismic data using convolutional neural networks Vishal Das and Tapan Mukerji, Stanford University (INT. AUD.: 3)
Speaker: Vishal Das

3:55 PM...... A theory-guided deep learning formulation of seismic waveform inversion Jian Sun, Zhan Niu, Kristopher A. Innanen, Junxiao Li, and Daniel O. Trad, University of Calgary (INT. AUD.: 4)
Speaker: Jian Sun

4:20 PM...... A progressive deep transfer learning approach to cycle-skipping mitigation in FWI Wenyi Hu, Advanced Geophysical Technology, Yuchen Jin, Xuqing Wu, and Jiefu Chen, University of Houston (INT. AUD.: 3)
Speaker: Wenyi Hu

4:45 PM...... Combining artificial intelligence with human reasoning for seismic interpretation James Lowell and Vural Erdogan, GeoTeric (INT. AUD.: 2)
Speaker: James Lowell

Tuesday, 17 September 2019
NS 3 Imaging and Modeling 1
Session Chairs: Sajad Jazayeri and Erasmus Oware
Location: 217C
Synopsis: Recent advances in seismic processing that utilize multi-parameter analyses to optimize processing schemes and improve seismic structure imaging.

1:50 PM...... Imaging buried massive ice in Victoria Valley, Antarctica, with multi-electrode electrical resistivity and ground penetrating radar Michele T. Bannister, Astrophysics Research Centre, School of Mathematics & Physics, Queen’s University Belfast, Northern Ireland, UK; David C. Nobile, Department of Geophysics, East China University of Technology, Nanchang; Myfanwy J. Godfrey, Raine & Associates, Australia; and Ronald S. Sletten, Department of Earth Sciences, University of Washington, Seattle (INT. AUD.: 3)
Speaker: David Nobile

2:15 PM...... Underground hydrocarbons spills: Low cost mapping by GPR-CSP method Erick S. Kusnir L., Mexican National Autonomous University (INT. AUD.: 4)
Speaker: Erick Kusnir

2:40 PM...... Trans-dimensional Bayesian inversion of full waveform CSEM data from arbitrary source Hai Li, Key Laboratory mineral resources, Institute of Geology and Geophysics, Chinese Academy of Sciences; Beijing, China; Qingting Li, Key Laboratory of Shale Gas and Geosearching, Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing, China, and University of Chinese Academy of Sciences, Beijing, China; and Guoqiang Xue, Key Laboratory mineral resources, Institute of Geology and Geophysics, Chinese Academy of Sciences; Beijing, China, and University of Chinese Academy of Sciences, Beijing, China (INT. AUD.: 4)
Speaker: Li Hai

3:05 PM...... Research on compensation method for high frequency absorption attenuation near surface Tian Yancan, Su Qin, Zeng Huahui, Xu Xingrong, and Xiao Mingtu (INT. AUD.: 3)
Speaker: Tian Yancan

3:30 PM...... Trans-dimensional Markov chain Monte Carlo method and supervised classification for near-surface full waveform inversion with topography Jungrak Son, Zachry Department of Civil Engineering, Texas A&M University (INT. AUD.: 3)
Speaker: Jungrak Son

3:55 PM...... 3D refraction traveltime migration for near surface imaging Yihao Wang and Jie Zhang, University of Science and Technology of China (USTC) (INT. AUD.: 4)
Speaker: Yihao Wang

4:20 PM...... The first-arrival traveltime tomography with joint minimum support and Tikhonov regularization Zhiwen Xue, Jie Zhang, Yihao Wang, and Ziang Li, University of Science and Technology of China (USTC) (INT. AUD.: 4)
Speaker: Xue Zhiwen

4:45 PM...... Data weighted full-waveform inversion with adaptive moment estimation for near-surface seismic refraction data Ao Cai, and Colin A. Zelt, Department of Earth, Environmental and Planetary Sciences, Rice University (INT. AUD.: 4)
Speaker: Ao Cai
Tuesday, 17 September 2019
RC 3 Geomechanics, Fractures and Flow 1
Session Chairs: Reinaldo Michelena and Elena Zhurina
Location: 217A
Synopsis: Critical for reservoir development, these case studies and theoretical investigations of mechanical insights increase our understanding of complex integrated systems.

1:50 PM...... Quantitative seismic interpretation based geo-cellular and dynamic model integration in a waterflood environment
Sanjeev Rajput, Baker Hughes, a GE Company; Ravi K. Pathak, Nusheena Mat Khair, and Aizuddin B. Khalid, Petronas (INT. AUD.: 3)
Speaker: Sanjeev Rajput

2:15 PM...... Dimension reduction and global sensitivity metrics using active subspaces for coupled flow and deformation modeling
Hyunjung Lee and Elaine T. Spiller, Marquette University; and Susan E. Minkoff, The University of Texas at Dallas (INT. AUD.: 3)
Speaker: Susan Minkoff

2:40 PM...... Notes on parameterization of minimum horizontal stress ($\sigma_h$) for geomechanical models
Scott Singleton, Independence Resources Management (INT. AUD.: 4)
Speaker: Scott Singleton

3:05 PM...... A sceptic’s view of VVAz and AVAz
Norbert Van De Coevering, Klaas Koster, and Rob Holt, Occidental Petroleum Corporation (Oxy) (INT. AUD.: 3)
Speaker: Norbert Van De Coevering

3:30 PM...... Replacing conventional brittleness indices determination with new attributes employing true hydrofracturing mechanism
Ritesh Kumar Sharma and Satinder Chopra, TGS, Calgary; and Laurence Lines, University of Calgary (INT. AUD.: 3)
Speaker: Satinder Chopra

3:55 PM...... Fracture characterization in the Delaware Basin using wide-azimuth seismic data
Colin M. Sayers, Lennert D. den Boer, Adam Koesoemadinata, and Edan Gofer, Schlumberger; and Colin Sayers
Speaker: Colin Sayers

4:20 PM...... Modeling maturation, elastic, and geomechanical properties of the Draupne Formation, offshore Norway
James R. Johnson and Jørgen Hansen, University of Oslo (UiO); Francois Renard, University of Oslo (UiO) and University Grenoble Alps (UGA); and Nazmul H. Mondol, University of Oslo and Norwegian Geotechnical Institute (NGI) (INT. AUD.: 4)
Speaker: James Johnson

Tuesday, 17 September 2019
RP 3 Acoustic Modeling
Session Chairs: Feng Chen and Qianqian Wei
Location: 305
Synopsis: Examines the variations in wave propagation through media.

1:50 PM...... Rock physics templates for chalk by combining acoustic and EM velocity
Hemin Yuan, Majken C. Looms, and Lars Nielsen, University of Copenhagen (INT. AUD.: 3)
Speaker: Hemin Yuan

2:15 PM...... New approach to up-scale the frequency-dependent effective excess charge density for seismoelectric modeling
Damien Jougnot, Sorbonne Université, CNRS (INT. AUD.: 4)
Speaker: Damien Jougnot

2:40 PM...... The measurement of reflection coefficient dispersion in the ultrasonic frequency range
Min Li, Genyong Tang, Chunhui Dong, Liming Zhao, Chao Sun, Xu Han, and Shangwu Wang, China University of Petroleum (INT. AUD.: 3)
Speaker: Min Li

3:05 PM...... P-wave attenuation characteristics of experimental observation and theoretical simulation in tight oil rocks
Rupeng Ma and Jing Ba, Hohai University; Maxim Lebedev, Curtin University; José Maria Carcione, Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS); Xin Zhou and Fan Li, Hohai University (INT. AUD.: 3)
Speaker: Rupeng Ma

3:30 PM...... Low-frequency attenuation measurements of fluids
Michael McCann, Nicola Tisato, and Kyle Spikes, Department of Geological Sciences, Jackson School of Geosciences, The University of Texas at Austin (INT. AUD.: 2)
Speaker: Michael McCann

3:55 PM...... Laboratory study of the elastic properties of sandstones at seismic and ultrasonic frequencies
Minlong Li, Shengli oil field of Sinopec; Daxing Wang and Changqing oil field of CNPC; and Liu Haojie, Sinopec (INT. AUD.: 3)
Speaker: Minlong Li

4:20 PM...... Attenuation of rock salt: Ultrasonic lab measurements on Gulf of Mexico cores
Jingjing Zong*, Robert R. Stewart, and Nikolay Dyaour, University of Houston (INT. AUD.: 2)
Speaker: Jingjing Zong

4:45 PM...... A new method for acoustic wave correction in shales based on the identification for the bedding textures
Yijia Wu, Bei Yang, YangQing Wei, and Yizhen Li, Geological Exploration and Development Research Institute of Chuanqing Drilling Engineering Ltd., CNPC; and Yang Zhou, Chengdu University of Technology (INT. AUD.: 5)
Speaker: Yijia Wu

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Tuesday, 17 September 2019
SM 3 Model Building and Modeling
Session Chairs: Milos Cvetkovic and Dhananjay Kumar
Location: 304A
Synopsis: Case studies on earth model building concepts, and workflows.

1:50 PM...... SEAM Phase II Barrett model classic data study: Processing, imaging, and attributes analysis Justin Tan, Tianjiang Li, Firas Jarrah, and King Lee, In-Depth Geophysical, Inc.; Rob Holt, Norbert Van De Coevering, and Klaas Koster, Occidental Petroleum Corporation (INT. AUD.: 3)
Speaker: Justin Tan
2:15 PM...... Using support vector regression to characterize uncertainty of geological surface Shicheng Yu, Cai Lu, and Guangmin Hu, University of Electronic Science and Technology of China (INT. AUD.: 3)
Speaker: Shicheng Yu
2:40 PM...... New workflow of stratigraphic grid building from relative geological time model Sébastien Lacaze, Fabien Pauget, Nicolas Daynac, Benjamin Durot, and Agathe Carbonié, Eliis (INT. AUD.: 2)
Speaker: Sébastien Lacaze
3:05 PM...... Seismic chronostatigraphy: lessons from an outcrop- and well-based seismic modeling of mixed clastic-carbonate strata in the Permian Basin, West Texas and New Mexico Hongliu Zeng, Bureau of Economic Geology, Jackson School of Geosciences, The University of Texas at Austin; Yawen He, Petroleum Geo-Services, Houston, Texas; Charles Kerans, Department of Geological Sciences, Jackson School of Geosciences, The University of Texas at Austin and Bureau of Economic Geology, Jackson School of Geosciences, The University of Texas at Austin; and Xavier Janson, Bureau of Economic Geology, Jackson School of Geosciences, The University of Texas at Austin (INT. AUD.: 2)
Speaker: Hongliu Zeng
3:30 PM...... The Application of 3D tectonic restoration and dynamic strain in Strike-slip tectonic belt: A case study from Bohai Bay Basin, NE China Zhenyu Lv, China National Offshore Oil Corporation (CNOOC) Ltd Tian Jin Branch; Dingyu Lv, CNOOC-China National Offshore Oil Corp - Guangzhou; Gaoqiang Wang, Li Zhang, and Jiali Zhao, China National Offshore Oil Corporation (CNOOC) Ltd Tian Jin Branch (INT. AUD.: 5)
Speaker: Zhenyu Lv
3:55 PM...... Application of comprehensive modeling of gypsum-containing complex tectonic belt in seismic imaging Guangcheng Xu, Chunming Wang, Zhuxin Chen, and Xingfang Liu, RIPED, PetroChina (INT. AUD.: 4)
Speaker: Guangcheng Xu
4:20 PM...... The physical simulation of the conjugate fault in ShaBei structural zone of Northwest Bozhong Sag, Bohai Sea Tao Li, Bai Shaocheng, Hua Xiang, Yu Hewei, and Sun Tingfei, Bohai Oil Research Institute, Tianjin Branch, CNOOC Ltd (INT. AUD.: 5)
Speaker: Tao Li
4:45 PM...... Synthetic modelling to recognize potential duplex waves from basement faults in western Canada Eneanwan Ekpo and David W. Eaton, Department of Geoscience, University of Calgary (INT. AUD.: 3)
Speaker: Eneanwan Ekpo

Tuesday, 17 September 2019
SPMI 3 Least Squares Migration Applications and Diffraction Imaging
Session Chairs: Tariq Alkhalifah and Yang He
Location: 214C
Synopsis: Covers two areas: (1) case-examples of using least squares migration to enhance imaging quality or for survey design; (2) methods to improve diffraction imaging.

1:50 PM...... Enhanced presalt imaging using iterative least-squares migration: A case study in Santos basin, Brazil Sriram Arasanipalai, Herrmann Lebit, Pascal Ollagnon, Bruno Virlovet, and Jeff Tilton, PGS (INT. AUD.: 3)
Speaker: Sriram Arasanipalai
2:15 PM...... Application of image-domain LSRTM for illumination study and optimal survey design Zhuoquan Yuan, Yang He, Jean Ji, Vijay Singh, and Senren Liu, TGS (INT. AUD.: 2)
Speaker: Zhuoquan Yuan
2:40 PM...... Least-squares RTM with ocean bottom nodes: Potentials and challenges Yan Liu, Yi Chen, Hongda Ma, and Chao Peng, CGG; Gopal Mohapatra, Wisley Martins, and Gregory Duncan, Hess; and Steve Checkles, Formerly Hess (INT. AUD.: 3)
Speaker: Yan Liu
3:05 PM...... Statistical calibration of the point spread function for image-domain least-squares migration Wei Kang, Britain Willingham, Zina Kriseman, and Seet Li Yong, WesternGeco (INT. AUD.: 3)
Speaker: Britain Willingham
3:30 PM...... Kirchhoff approximation based least-squares reverse time migration for subsalt imaging Kai Yang and Jianfeng Zhang, Key Laboratory of Petroleum Resources Research, Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing (INT. AUD.: 3)
Speaker: Kai Yang
3:55 PM...... Path-integral seismic diffraction imaging with probability weights Luke Decker and Sergey Fomel, The University of Texas at Austin (INT. AUD.: 3)
Speaker: Luke Decker
4:20 PM...... Low-rank matrix decomposition method for 3D diffraction imaging Jingtao Zhao and S Hipeng Peng, China University of Mining and Technology (Beijing), State Key Laboratory of Coal Resources and Safe Mining, Beijing, China; and Caixia Yu, Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing, China. (INT. AUD.: 5)
Speaker: Jingtao Zhao
4:45 PM...... 3D diffraction separation and imaging using an adaptive rank-reduction method Peng Lin, S Hipeng Peng, Rushan Wu, Jingtao Zhao, and Xiaoqin Cui, China University of Mining & Technology (Beijing); and Ximeng Wu, Bureau of Economic Geology (INT. AUD.: 1)
Speaker: Peng Lin
Tuesday, 17 September 2019
SMNPR 2 Multiples - Theoretical and Practical Advances
Session Chairs: Joseph Reilly and Jing Wu
Location: 304B
Synopsis: Advances in the processing of free-surface and internal multiples via Marchenko and Inverse Scattering Series methods, as well as new developments in adaptive subtraction.
1:50 PM...... Representations for the Marchenko Method for imperfectly sampled data Kees Wapenaar and Johno van Usseljik, Delft University of Technology (INT. AUD.: 3)
Speaker: Johno Van Usseljik
2:15 PM...... A field data example of Marchenko multiple elimination Lele Zhang and Evert Slob, Delft University of Technology, The Netherlands (INT. AUD.: 3)
Speaker: Lele Zhang
2:40 PM...... Internal multiple attenuation for OBN data with overburden/target separation Roberto Pereira, Mena Ramzy, Petre Griscenco, Benjamin Huard, Hui Huang, Luis Cypriano, and Adel Khalil, CGG (INT. AUD.: 3)
Speaker: Roberto Pereira
3:05 PM...... Practical strategies for interbed multiple attenuation Gaurav Dutta, Hui Huang, Karthik Kanakamedala, Bin Deng, and Ping Wang, CGG (INT. AUD.: 3)
Speaker: Gaurav Dutta
3:30 PM...... A new multidimensional method that eliminates internal multiples that interfere with primaries, without damaging the primary, without knowledge of subsurface properties, for offshore and on-shore conventional and unconventional plays Yanglei Zou, Chao Ma, and Arthur B. Weglein, M-OSRP/Physics Dept./University of Houston (INT. AUD.: 2)
Speaker: Arthur Weglein
3:55 PM...... Direct Green’s function retrieval with internal multiples: An alternative to Marchenko focusing Qianguo Guo, Physical Science and Engineering, King Abdullah University of Science & Technology (KAUST); Ivan Vasconcelos, Dept. of Earth Sciences, Utrecht University, and Tariq Alkhalifah, Physical Science and Engineering, King Abdullah University of Science & Technology (KAUST) (INT. AUD.: 3)
Speaker: Arthur Weglein
4:20 PM...... Adaptive subtraction using 3D curvelets: A linear optimisation framework Amarjeet Kumar, Rajiv Kumar, Gary Hampson, Mike Hartley, and Troy Thompson, DownUnder GeoSolutions (INT. AUD.: 3)
Speaker: Amarjeet Kumar
4:45 PM...... Pattern-matching adaptive subtraction with nonstationary prediction-error filters: Requirements for applications to high-dimensional data sets Cintia Lapilli, Clement Kostov, Ahmed Rushdy, David Nichols, and Frederico Xavier de Melo, Schlumberger; and Robert Clapp, Stanford University (INT. AUD.: 3)
Speaker: Cintia Lapilli
Tuesday, 17 September 2019
SS 5 CO2 Monitoring
Session Chairs: Boris Gurevich and Michel Verliec
Location: 301B
Synopsis: CO2 monitoring case studies and learnings
1:50 PM...... High-resolution 3D seismic acquisition at the Tomakomai CO2 storage project, offshore Hokkaido, Japan Timothy Meckel and Ye Feng, Bureau of Economic Geology, Jackson School of Geosciences, The University of Texas at Austin (INT. AUD.: 2)
Speaker: Timothy Meckel
2:15 PM...... Overview of active and passive seismic data acquisition and monitoring at the Illinois Basin: Decatur project Sherilyn Williams-Stroud, Hannes Leefaru, Robert A. Bauer, Sallie Greenberg, and Steven Whittaker, Illinois State Geological Survey (INT. AUD.: 3)
Speaker: Sherilyn Williams-Stroud
2:40 PM...... Watching the leakage: DAS seismic monitoring of the shallow CO2 controlled-release experiment at the South West Hub Institutions Laboratory Konstantin Tertyshnikov and Roman Pevzner, Curtin University; Barry Freifeld, Class VI Solutions; Ludovic Ricard and Arsham Avijegon, CSIRO (INT. AUD.: 5)
Speaker: Konstantin Tertyshnikov
3:05 PM...... 7 years of 4D seismic monitoring at the Aquistore CO2 storage site, Saskatchewan, Canada Donald White and Kyle Harris, Geological Survey of Canada; Lisa A.N. Roach, LAN Geophysics; and Michelle Robertson, Lawrence Berkeley National Laboratory (INT. AUD.: 4)
Speaker: Donald White
3:30 PM...... Enhancing CO2 monitoring at the Decatur CCS site through improved microseismic location constraints B.D.E. Dando, B. Goertz-Allmann, K. Iranpour, D. Kühn, and V. Oye, NORSAR (INT. AUD.: 3)
Speaker: Ben Dando
3:55 PM...... Exploring continuous seismic data for monitoring CO2 injection at the CaMI Field Research Station, Alberta, Canada Marie Macquet and Donald C. Lawton, CREWES/University of Calgary and CMC Research Institutes (INT. AUD.: 2)
Speaker: Marie Macquet
4:20 PM...... Seismic monitoring of CO2-EOR operations in the Texas Panhandle and southern Kansas using surface seismometers Abhash Kumar, National Energy Technology Laboratory/Leidos Research Support Team; Alex Bear, Department of Geology and Environmental Science, University of Pittsburgh; Hongru Hu, Department of Earth and Atmospheric Sciences, University of Houston; Richard Hammack, National Energy Technology Laboratory; William Harbert, Department of Geology and Environmental Science, University of Pittsburgh; William Aampomah, Robert Balch, and Leonard Garcia, Petroleum Recovery Research Center, New Mexico Institute of Mining and Technology; and Alex Nolte and George Tsoflias, Department of Geology, University of Kansas (INT. AUD.: 3)
Speaker: Abhash Kumar
4:45 PM...... Integrated model construction for CO2-EOR monitoring via charged-wellbore casing controlled-source electromagnetics Richard A. Krahnenbuhl, Yangguo Li, and W. Andy McCauley, Center for Gravity, Electrical & Magnetic Studies (CGEM), Colorado School of Mines; Nathan Moodie and Trevor Irons, Energy and Geoscience Institute, University of Utah; and Benjamin R. Blass, United States Geological Survey (INT. AUD.: 3)
Speaker: Richard Krahnenbuhl
Tuesday, 17 September 2019
SS 6 Seismic Advancements in the Permian
Session Chairs: Richard Page and Shane Quimby
Location: 303B
Synopsis: Recent advancements in acquisition, imaging, and quantitative interpretation of seismic data are essential for operators to optimize performance in the Permian.

1:50 PM...... Gini 3D high productivity blended acquisition: A case study from the Delaware basin Anna Leslie, Vincent Durussel, Terence Krishnasamy, and Olivier Winter, CGG (INT. AUD.: 3)
Speaker: Anna Leslie
2:15 PM...... Permian Basin processing and handling shallow anomalies and permit holes: a compressive seismic acquisition and reconstruction case study Tianjiang Li, Justin Tan, and Wensheng Chu, In-Depth Geophysical; Tao Jiang, Yifeng Jiang, and Peter Eick, In-Depth Compressive Seismic; and Kevin Woller, Robert Bodziak, Robert Meek, and Buzz Davis, Pioneer Natural Resources (INT. AUD.: 3)
Speaker: Tianjiang Li
2:40 PM...... Challenges and uncertainty in the seismic reservoir characterization of Bone Spring and Wolfcamp formations in the Delaware Basin using rock physics Ritesh Kumar Sharma, TGS, Calgary; Satinder Chopra and James Keay, TGS; and Laurence Lines, University of Calgary (INT. AUD.: 3)
Speaker: Satinder Chopra
3:05 PM...... Land FWI in the Delaware Basin, West Texas: A case study Vanessa Brown, Chevon North America Exploration and Production Company; Gary Murphy, Chevon Energy Technology Company; and Denes Vigh, WesternGeco Schlumberger (INT. AUD.: 3)
Speaker: Gerard Murphy
3:30 PM...... Seismic-driven pore and fracture pressure prediction in the Permian Basin Ahmed Mohamed, CGG; and Kt Clemens, Vishnu Pandey, Bertrand Six, Kevin Chesser, and Vivek Swami (INT. AUD.: 3)
Speaker: Ahmed Mohamed
3:55 PM...... Shallow land PSDM velocity model building for unconventional plays Mike Perz, Candace Bruins, and Josef Heim, TGS (INT. AUD.: 3)
Speaker: Michael Perz
4:20 PM...... Seismic expression of Salado Formation gas pockets in the Midland Basin Kevin L. Woller and Robert A. Meek, Pioneer Natural Resources (INT. AUD.: 4)
Speaker: Kevin Woller

Tuesday, 17 September 2019
SVE 2 Case Studies
Session Chairs: John Brittan and Yang Zhao
Location: 217B
Synopsis: These papers present applications of velocity model building in a variety of locations, including the Gulf of Mexico and Asia.

1:50 PM...... Data-domain reflection tomography for initial velocity model building using challenging 3D seismic data Andrey Bakulin, Ilya Silvestrov, and Maxim Dmitriev, EXPEC Advanced Research Center, Saudi Aramco; Dmitry Neklyudov, Maxim Protasov, and Kirill Gadylyshin, Institute of Petroleum Geology and Geophysics, Novosibirsk, Russia (INT. AUD.: 2)
Speaker: Dmitry Neklyudov
2:15 PM...... Pre-stack depth migration velocity modeling of low-amplitude structure in Matouying area Peng Wang, Yongfeng Zhang, Xiaowei Wang, Yundong Yong, and Shuhai Qie (INT. AUD.: 3)
Speaker: Peng Wang
2:40 PM...... Velocity model building using basin modeling and rock physics, with examples from Campeche deep-water Gulf of Mexico Jianchun Dai, Dawn Jantz, Zengbao Chen, Claire Jacob, Daniel Smith, Michael O’Brien, Chung-Chi Shi, Chuck Peng, WesternGeco, Schlumberger; and Simone Salazar and Thorsten Joppen, SIS, Schlumberger (INT. AUD.: 4)
Speaker: Jianchun Dai
3:05 PM...... Multi-information constrained model-based tomographic inversion in complex structure imaging: Case study from Qaidam basin, western China Weiming Liu, Shuhua Hu, Fei Li, Jing Wang, and Xinyuan Feng, Research Institute of Petroleum Exploration & Development-Northwest (NWGI), Petrochina (INT. AUD.: 3)
Speaker: Weiming Liu
3:30 PM...... Dangerous grounds to folds and thrusts: A case study on broadband imaging for the largest exploration survey in Asia Rupam Chakraborty, Michelle Tham, Artem Sazykin, Gavin Menzel-Jones, Natalie Adelman, Olga Zdraveva, Ching Tu, Paul Miller, and David Barliss, WesternGeco (INT. AUD.: 3)
Speaker: Rupam Chakraborty
3:55 PM...... Prior velocity modeling and uncertainty analysis with basin modeling and rock physics constraints Anshuman Pradhan, Huy Le, Nader C. Dutta, Biondo Biondi, and Tapan Mukerji, Stanford University (INT. AUD.: 3)
Speaker: Anshuman Pradhan
4:20 PM...... The benefit of tilted orthorhombic imaging on a FAZ dataset in the central Gulf of Mexico Li Li, Dhananjay Tiwari, Xinyi Sun, and Zhiquiang Guo, TGS (INT. AUD.: 3)
Speaker: Li Li
Wednesday, 18 September 2019
ACQ 4 CS and Survey Design
Session Chairs: Christopher Lindsey and Steven Roche
Location: 221A
Synopsis: Session includes six papers on compressive sensing design and reconstruction techniques and two papers on acquisition designs overcoming cultural issues.

8:30 AM...... Automated target-oriented acquisition design: Optimizing both source and receiver geometries  
Sixue Wu, Eric Verschuur, and Gerrit Blacquire, Delft University of Technology, Delphi Consortium (INT. AUD.: 3)  
Speaker: Sixue Wu

8:55 AM...... Global land seismic acquisition optimization by accounting for varying noise, obstacles, non-uniform placement costs, and signal  
Christof Stork, Land Seismic Noise Specialists (INT. AUD.: 2)  
Speaker: Christof Stork

9:20 AM...... Wavefield reconstruction using wavelet transform  
Iga Pawelec and Paul Sava, Center for Wave Phenomena, Colorado School of Mines; and Michael Wakin, SINE Center for Research in Signals and Networks, Colorado School of Mines (INT. AUD.: 3)  
Speaker: Iga Pawelec

9:45 AM...... Reconstruction of 3D seismic data from sparse random OBN acquisition by compressive sensing  
Mengli Zhang and David Lumley, University of Texas at Dallas (INT. AUD.: 3)  
Speaker: Mengli Zhang

10:10 AM ... SEAM phase II Barrett model classic data study: Land compressive seismic acquisition  
Tao Jiang, Peter Eick, and Yifeng Jiang, In-Depth Compressive; Bin Gong, Justin Tan, and Tianjiang Li, In-Depth Geophysical; Klaas Koster, Donnie Enns, and Robert Holt, Occidental Petroleum Corporation (INT. AUD.: 3)  
Speaker: Tao Jiang

10:35 AM ... Anisotropic model building based on multi-well constraint full-azimuthal tomography: Case study from Pre-Caspian Basin  
Yuchao Wang, Wenqing Liu, Shuhua Hu, Xiao Wang, and Tao Zhang, Research Institute of Petroleum Exploration & Development – Northwest (NWGI), PetroChina (INT. AUD.: 2)  
Speaker: Yuchao Wang

11:00 AM ... Scattering pattern analysis and generalized Radon transform inversion for acoustic VTI media  
Wei Ouyang, State Key Laboratory of Geodesy and Earth’s Dynamics, Center for Computational and Exploration Geophysics, Institute of Geodesy and Geophysics, Chinese Academy of Sciences; Quan Liang, State Key Laboratory of Geodesy and Earth’s Dynamics, Center for Computational and Exploration Geophysics, Institute of Geodesy and Geophysics, Chinese Academy of Sciences; and Weijian Mao, State Key Laboratory of Geodesy and Earth’s Dynamics, Center for Computational and Exploration Geophysics, Institute of Geodesy and Geophysics, Chinese Academy of Sciences (INT. AUD.: 2)  
Speaker: Wei Ouyang

11:25 AM ... Elastic waveform inversion of downhole microseismic data for 3D VTI models  
Oscar Jarillo Michel and Ilya Tsvankin, Center for Wave Phenomena, Colorado School of Mines (INT. AUD.: 3)  
Speaker: Oscar Jarillo Michel
Wednesday, 18 September 2019
AVOSI 2 Methodology 3
Session Chairs: Samarjit Chakraborty and Simon Voisey
Location: 217D
Synopsis: Advances in seismic inversion and AVA analysis and workflows.

8:30 AM...... Iterative Bayesian inversion Jingfeng Zhang, Matt Walker, John Etgen, and Anya Reitz, BP America Inc. (INT. AUD.: 3)
Speaker: Jingfeng Zhang
8:55 AM...... Improved seismic characterization through facies based inversion in the depth domain Kester Waters and Michel Kemper, Ikon Science Ltd; James Gunning, CSIRO (INT. AUD.: 3)
Speaker: Kester Waters
9:20 AM...... Nonlinear inversion for stress- and fluid-sensitive parameters Huaizhen Chen and Kristopher Innanen, Department of Geoscience, University of Calgary (INT. AUD.: 3)
Speaker: Huai-Zhen Chen
9:45 AM...... Constraints guided basis pursuit prestack AVA inversion Fan Xia, Sinopec Tech Houston; Shuang Zhao and Weinan Ding, Sinopec Southwest Company; and Yequan Chen, Sinopec Tech Houston (INT. AUD.: 3)
Speaker: Fan Xia
10:10 AM... Geostatistics inversion combining conditional Gaussian distributions with multiple-point geostatistics Mingzhu Zhang, Hui Zhou, Bo Yu, Yuanpeng Zhang, and Shuqi Jiang, China University of Petroleum (Beijing, China) (INT. AUD.: 3)
Speaker: Mingzhu Zhang
10:35 AM... Digital superresolution in seismic amplitude processing Odd Kolbjørnsen, Department of Mathematics University of Oslo, and Lundin Norway; and Andreas Kjelsrud Evensen, Lundin Norway (INT. AUD.: 3)
Speaker: Odd Kolbjørnsen
11:00 AM... Multi-trace blocky reflectivity inversion with anisotropic total variation regularization Sichao Zhang, China University of Petroleum, State Key Laboratory of Petroleum Resource and Prospecting, CNPC Key Lab of Geophysical Exploration, Beijing, China; Xu Fan, Exploration and Development Research Institute of Xinjiang Branch, CNPC; Guofa Li, China University of Petroleum, State Key Laboratory of Petroleum Resource and Prospecting, CNPC Key Lab of Geophysical Exploration, Beijing, China; Xinlong Huang, Li Jiang, and Yu Guan, Exploration and Development Research Institute of Xinjiang Branch, CNPC (INT. AUD.: 4)
Speaker: Sichao Zhang
11:25 AM... Simultaneous inversion of Q and reflectivity using dictionary learning Jie Shao, Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing, China; Institutions of Earth Science, Chinese Academy of Sciences, Beijing, China; and University of Chinese Academy of Sciences, Beijing, China; and Yibo Wang and Xu Chang Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing, China; and Institutions of Earth Science, Chinese Academy of Sciences, Beijing, China (INT. AUD.: 3)
Speaker: Jie Shao

Wednesday, 18 September 2019
BG 1 EM and Gravity Methods
Session Chairs: Patricia De Lugao and Kurt-Martin Strack
Location: 217C
Synopsis: This session presents a variety of borehole methods utilizing EM and gravity measurements.

8:30 AM...... Fast inversion method of two-dimensional nuclear magnetic resonance based on random singular value decomposition (RSVD) Li Haitao, Deng Shaogui, Hu Xufei, Yuan Xiuyong, and Zhang Pan, School of Geosciences, China University of Petroleum (East China), Qingdao, China (INT. AUD.: 3)
Speaker: Haitao Li
8:55 AM...... Nuclear magnetic resonance characteristics of tight sandstone reservoirs under the influence of wettability and oil saturation Cheng Feng, China University of Petroleum-Beijing at Karamay, China; Zhenlin Wang, PetroChina Xinjiang Oilfield Company, Karamay, China; Wen Yin, Ziyan Feng, and Mengjie Zhang, China University of Petroleum-Beijing at Karamay, China (INT. AUD.: 4)
Speaker: Cheng Feng
9:20 AM...... A new interpretation model utilizing the combination with acoustic-resistivity-NMR for gas reservoir identification in tight sandstone Fengjiao Zhang, Shaogui Deng, and Haitao Li, China University of Petroleum, Qingdao ShanDong China (INT. AUD.: 3)
Speaker: Fengjiao Zhang
Speaker: Cicero Teixeira Regis
10:10 AM... Deep detection of formation boundary using transient electromagnetic logging method Xiyoung Yuan, Shaogui Deng, Xuefi Hu, Pan Zhang and Haitao Li, School of Geoscience, China University of Petroleum (East China), Qingdao, China (INT. AUD.: 3)
Speaker: Xiyoung Yuan
10:35 AM... Wellbore integrity investigation using time-domain reflectometry Jiannan Wang and Yuxin Wu, Lawrence Berkeley National Laboratory (INT. AUD.: 4)
Speaker: Jiannan Wang
11:00 AM... Electromagnetic borehole mapping: North Sea case study A. Walmsley, L. Pan, J. Ma, Halliburton; S. Kelk and S. Gear, Zennor Petroleum (INT. AUD.: 2)
Speaker: Arthur Walmsley
11:25 AM... Time-lapse borehole vector gravity for reservoir monitoring Richard A. Krahenbuhl, Center for Gravity, Electrical & Magnetic Studies (CGEM), Colorado School of Mines; Anya Reitz, Center for Gravity, Electrical & Magnetic Studies (CGEM), Colorado School of Mines, and BP America, Inc.; Yaoguo Li, Center for Gravity, Electrical & Magnetic Studies (CGEM), Colorado School of Mines; Hyoungea Rim, Center for Gravity, Electrical & Magnetic Studies (CGEM), Colorado School of Mines and Pusan National University; and Sean Wagner, BP Exploration (Alaska), Inc. (INT. AUD.: 3)
Speaker: Richard Krahenbuhl
EMRS 3 Theory, Application and Case Studies
Location: 225C
Session Chairs: Jiuping Chen and Daniele Colombo
Synopsis: Novel EM methods and enhanced EM inversion with other geophysical data/constraints.

8:30 AM...... Foothills structural model de-risking with 3D magnetotellurics
Federico Miorelli and Randall L. Mackie, CGG; Fabien Gilbert, TOTAL; and Wolfgang Soyer, CGG (INT. AUD.: 4)
Speaker: Federico Miorelli

8:55 AM...... Building confidence in CSEM for exploration: Benchmarking
Antony Price, Total E&P; and Claudia Twarz and Pål Gabrielsen, EMGS (INT. AUD.: 3)
Speaker: Antony Price

9:20 AM...... An approximate and efficient 3D electromagnetic telemetry modeling method
Jiuping Chen, Liang Sun, Pavel Annenkov, and Melissa Ramirez Tovar, Schlumberger (INT. AUD.: 3)
Speaker: Jiuping Chen

9:45 AM...... Case histories applying top-casing electrodes and surface based EM fields for well integrity mapping
Michael Wilt and Evan Um, Lawrence Berkeley National Laboratory; Kris MacLennan, Groundmetrics; and Chester Weiss and Bescardes Didem Gungor, Sandia National Laboratory (INT. AUD.: 3)
Speaker: Michael Wilt

10:10 AM ... On the validity of the equivalent object and equivalent source models for including the effects of casing in CSEM reservoir imaging and monitoring
Armando Sena, Daniele Colombo, and Gary McNeice, EXPEC Advanced Research Center, Saudi Aramco (INT. AUD.: 5)
Speaker: Armando Sena

10:35 AM ... Improving basement depth mapping using 3D marine magnetotelluric (MT) inversion
Arvin B. Karpiah, Max A. Meju, Roger V. Miller, and Raja N.B.R. Musafarudin, Petronas Carigali (INT. AUD.: 3)
Speaker: Arvin Karpiah

11:00 AM ... Structure-guided 3D joint inversion of CSEM and MT data from a fold-thrust belt
Rogier V. Miller, Max A. Meju, and Ahmad Shahir Saleh, Petronas Carigali Centre for Advanced Imaging; and Randall L. Mackie and Federico Miorelli, CGG Multi-Physics Imaging (INT. AUD.: 3)
Speaker: Roger Miller

11:25 AM ... Noise, constraints and 3D inversion: A practical look at high-resolution aquifer mapping using airborne electromagnetics
Mike McMillan, Computational Geosciences Inc.; Eldad Haber, University of British Columbia; and Ken Lawrie, Geoscience Australia (INT. AUD.: 4)
Speaker: Michael McMillan

FWI 5 Regularization Techniques 2
Location: 225B
Session Chairs: Ettore Biondi and Zhigang Zhang
Synopsis: Various techniques to reduce the null space for inversion, to improve robustness and convergence rate, now also aided by machine learning.

8:30 AM...... Adaptive traveltime inversion with information entropy regularization
Bingbing Sun and Tariq Alkhalifah, King Abdullah University of Science and Technology (INT. AUD.: 3)
Speaker: Bingbing Sun

8:55 AM...... Broadband FWI through alternating restoration and inversion of missing frequencies
Wenyi Hu, Advanced Geophysical Technology Inc. (INT. AUD.: 3)
Speaker: Wenyi Hu

9:20 AM...... On the robustness of l1-regularized ADMM-based wavefield reconstruction inversion against compressed acquisition sampling
H. S. Aghamiry, Geoazur-CNRS-IRD-UNS-OCA and University of Tehran; A. Gholami, University of Tehran; S. Operto, Geoazur-CNRS-IRD-UNS-OCA (INT. AUD.: 4)
Speaker: Stephane Operto

9:45 AM...... The alternating direction method of multipliers for total variation regularization in joint time-lapse full waveform inversion
Sjoerd de Ridder, Mohammad Shahraeeni, and Constantin Gerea, Total E&P UK (INT. AUD.: 3)
Speaker: Sjoerd de Ridder

10:10 AM ... Bayesian approach to facies-constrained wavefield inversion for VTI media
Sagar Singh and Ilya Tssvankin, Colorado School of Mines; and Ehsan Zabihi Naeini, Ikon Science (INT. AUD.: 3)
Speaker: Sagar Singh

10:35 AM ... A strategy for Laplace-Fourier domain FWI using multi dampings and multi offsets
Changsoo Shin, Seoul National University; S. Ko, Shins Geophysics Corp., Seoul, South Korea; and J. Lee, Seoul National University (INT. AUD.: 3)
Speaker: Changsoo Shin

11:00 AM ... High-resolution reservoir characterization using deep learning aided elastic full-waveform inversion: The North Sea field data example
Zhen-dong Zhang and Tariq Alkhalifah, King Abdullah University of Science and Technology and Technology (INT. AUD.: 4)
Speaker: Zhendong Zhang

11:25 AM ... Waveform inversion by model reduction using spline interpolation
Guillaume Barrier, Ettore Biondi, and Robert Clapp, Stanford University (INT. AUD.: 3)
Speaker: Guillaume Barrier
Wednesday, 18 September 2019
FWI 6 Elastic and Multiparameter Method 2
Session Chairs: Tariq Alkhalifah and Yong Ma
Location: 302B
Synopsis: Numerical and field studies to address viscoelastic effects, cross-talk, petrophysical constraints, and anisotropy update.

8:30 AM...... Elastic full waveform inversion with probabilistic petrophysical model constraints Odette Aragao and Paul Sava, Center for Wave Phenomena, Colorado School of Mines (INT. AUD.: 3) Speaker: Odette Aragao
8:55 AM...... Amplitude-based misfit functions in viscoelastic FWI applied to field W-VSP data in Western Canada W. Pan, Department of Geoscience, University of Calgary, and Geophysics Group, Los Alamos National Laboratory, NM, USA; and K. A. Innamen, Department of Geoscience, University of Calgary (INT. AUD.: 5) Speaker: Wenyong Pan
9:20 AM...... Multiscale Phase Inversion of Anisotropic Data Shihiang Feng, King Abdullah University of Science and Technology (KAUST), Saudi Arabia; Lei Fu, Southern University of Science and Technology, China; Zongcai Feng and Gerard T. Schuster, King Abdullah University of Science and Technology (KAUST), Saudi Arabia (INT. AUD.: 3) Speaker: Shihiang Feng
9:45 AM...... Elastic wavefield tomography with probabilistic petrophysical clustering Odette Aragao and Paul Sava, Center for Wave Phenomena, Colorado School of Mines (INT. AUD.: 3) Speaker: Odette Aragao
10:10 AM ... 3D elastic semi-global waveform inversion – estimation of VP to VS ratio Nuno Da Silva, Imperial College London; Gang Yao, China University of Petroleum (Beijing); Oscar Calderon Agudo, George Stronge, and Michael Warner, Imperial College London (INT. AUD.: 5) Speaker: Nuno Da Silva
10:35 AM ... Parameter cross-talk and leakage between spatially separated unknowns in viscoelastic FWI S. Keating and K. A. Innamen, Dept. of Geoscience, University of Calgary (INT. AUD.: 3) Speaker: Scott Keating
11:00 AM ... Elastic multiparameter FWI in sharp contrast medium Christian A. Rivera, Phuong-Thu Trinh, Elies Bergounioux, and Bertrand Duquet, Total SA, Pau, France (INT. AUD.: 3) Speaker: Phuong-Thu Trinh
11:25 AM ... Concurrent elastic inversion of Rayleigh and body waves with interleaved envelope-based and waveform-based misfit functions Li Ren and George A. McMechan, The University of Texas at Dallas; and Peng Guo, Deep Earth Imaging Future Science Platform, CSIRO Energy Perth, Australia (INT. AUD.: 3) Speaker: Li Ren

Wednesday, 18 September 2019
INT 4 Faults and Fractures
Session Chairs: Jeff Zawila and Rui Zhang
Location: 221B
Synopsis: Application of modern and classic techniques to determine faults, fractures, and edges.

8:30 AM...... Integrated PSDM seismic attributes and reservoir dynamic data for fault prediction in H oilfield, Middle East Chen Xin, Wei Xiaodong, Peng Xukui, Wang Xuejun, Sun Haishan, Chen Xiangfei, Xia Yaliang, Li Yanjing, Yang Ke, Chen Gang, Yan Xiaohuan, BGP, CNPC (INT. AUD.: 5) Speaker: Chen Xin
8:55 AM...... Extract discontinuity features from horizon attribute Xiang Xiao, Cheng Yin, Feng Ding, and Ronghuo Dai, School of Geosciences and Technology, Southwest Petroleum University (INT. AUD.: 4) Speaker: Xiang Xiao
9:20 AM...... Fault stability evaluation based on microseismic data and sliding trend seismic attributes: A case study in the Sichuan Basin, Southwest China Wang Shize, BGP, CNPC; Chengdu University of Technology; Cai Zhidong, BGP, CNPC; China University of Geosciences, Beijing; Guo Rui, Li Yanpeng, and Feng Chao, BGP, CNPC; Chen Yuanzhong, BGP, CNPC and University of Electronic Science and Technology of China (INT. AUD.: 3) Speaker: Shize Wang
9:45 AM...... Innovative automatic fault detection using a volume 3D scanning method Sven Philit, Sébastien Lacaze, and Fabien Pauget, Ellis (INT. AUD.: 2) Speaker: Sébastien Lacaze
10:10 AM ... Seismic fault enhancement using spectral decomposition assisted attributes Bin Lu, Jie Qi, and Gabriel Machado, The University of Oklahoma; Fangyu Li, The University of Georgia; and Kurt J. Marfurt, The University of Oklahoma (INT. AUD.: 1) Speaker: Bin Lu
10:35 AM ... Multi-scale strike-slip fault delineation in deep fractured-vuggy carbonate Qi Linxin and Li Zongjie, Sinopec Northwest Oilfield Branch (INT. AUD.: 3) Speaker: Linxin Qi
11:00 AM ... Flexures in the Anadarko Basin: Do they indicate faulting or folding? Swetal Patel and Kurt Marfurt, University of Oklahoma (INT. AUD.: 2) Speaker: Swetal Patel
11:25 AM ... Case study: Geology-guided tomography in a complicated geological area Yanwei Xue, Chung-Chi Shih, Hao Deng, Jun Tang, Zengbao Chen, Dawn Jantz, and Michael O’Brian, Schlumberger (INT. AUD.: 3) Speaker: Yanwei Xue
Wednesday, 18 September 2019
MG 1 New Methods and Developments
Session Chairs: Glenn Chubak and Elizabeth Maag-Capriotti
Location: 301B
Synopsis: New developments in mineral exploration technology or the novel applications of existing methods.

8:30 AM...... Applications of machine learning to the spatial interpolation of aeromagnetic data Tomas Naprstek, Laurentian University and National Research Council Canada; and Richard Smith, Laurentian University (INT. AUD.: 4)
Speaker: Tomas Naprstek

8:55 AM...... Estimating total magnetization directions using convolutional neural networks Felicia Nurindrawati and Jaija Sun, Department of Earth and Atmospheric Sciences, University of Houston (INT. AUD.: 2)
Speaker: Felicia Disa Nurindrawati

9:20 AM...... Impact of airborne geophysical surveys on the exploration of gold mineralization in Burkina Faso Nasreddine Bournas, Geotech Ltd, Aurora, ON; Abdoulaye Touré, Mahamoud Balboné, Palalé Zagré, and Abdoulaye Ouédraogo, Bureau of Mines and Geology of Burkina Faso (BUMIGEB); Burkina Faso; and Kanita Khaled, Alexander Prikhodko, and Jean Legault, Geotech Ltd, Aurora, ON (INT. AUD.: 3)
Speaker: Abdoulaye Touré

9:45 AM...... 3D finite-volume time-domain modeling of geophysical electromagnetic data on unstructured grids using potentials Xushan Lu and Colin G. Farquharson, Department of Earth Sciences, Memorial University of Newfoundland; and Jean-Marc Miehé and Grant Harrison, Orano Canada Inc. (INT. AUD.: 3)
Speaker: Xushan Lu

10:10 AM ... Advancements in 3D time-domain electromagnetic inversion in the Athabasca Basin, Canada: A unique case study from the West McArthur project Clinton Keller, Cameco Corporation (INT. AUD.: 3)
Speaker: Clinton Keller

10:35 AM ... Magnetic on-time transient electromagnetic (MoTEM) method: A feasibility study at the Raglan nickel mine Aline Tavares Melo, Departamento de Geologia, Universidade Federal de Minas Gerais (UFMG), Brazil, and Center for Gravity, Electrical & Magnetic Studies (CGEM), Department of Geophysics, Colorado School of Mines; and Yaoguo Li, Center for Gravity, Electrical & Magnetic Studies (CGEM), Department of Geophysics, Colorado School of Mines (INT. AUD.: 3)
Speaker: Aline Melo

11:00 AM ... A brief analysis of MobileMT data Daniel Sattel, EM Solutions; Ken Witherly, Condor Consulting; and Vlad Kaminski, Aarhus Geophysics (INT. AUD.: 3)
Speaker: Daniel Sattel

11:25 AM ... ZTEM and magnetic interpretation results over the La Esperanza epithermal silver and precious and base metals project, Zacatecas and Durango States, Mexico Nasreddine Bournas, Jean Legault, Alexander Prikhodko, and Kanita Khaled, Geotech Ltd.; and Jerry D. Blackwell, Canasil Resources Inc. (INT. AUD.: 4)
Speaker: Jean Legault

Wednesday, 18 September 2019
MLDA 5 Interpretation 2
Session Chairs: Anshuman Pradhan and Rocky Roden
Location: 221D
Synopsis: Concepts of machine learning in interpretation

8:30 AM...... Seismic stratigraphy interpretation via deep convolutional neural networks Haibin Di, Zhun Li, Hiren Maniar, and Aria Abubakar, Schlumberger (INT. AUD.: 3)
Speaker: Haibin Di

8:55 AM...... Direct hydrocarbon indicators based on long short-term memory neural network Luiz Fernando Santos, Reinaldo Mozart Gama E Silva, and Marcelo Gattass, Tegefr Institute, and Aristofanes Correa Silva, Federal University of Maranhão (INT. AUD.: 3)
Speaker: Luiz Fernando Santos

9:20 AM...... Stratigraphic estimation from seismic data using deep learning Fantine Huot, Robert Clapp, and Biondo Biondi, Stanford University; Bruce Power and Joe Stefani, Chevron Energy Technology Company (INT. AUD.: 4)
Speaker: Fantine Huot

9:45 AM...... Style transfer for generation of realistically textured subsurface models Oleg Ovcharenko, Vladimir Kazei, Daniel Peter, and Tariq Alkhalifah, King Abdullah University of Science and Technology (INT. AUD.: 3)
Speaker: Oleg Ovcharenko

10:10 AM ... Effective machine learning approach for identifying high total organic carbon formations Adewale Amosu and Yuefeng Sun, Texas A&M University (INT. AUD.: 5)
Speaker: Adewale Amosu

10:35 AM ... Transforming seismic data into pseudo-RGB images to predict CO₂ leakage using pre-learned convolutional neural networks weights Rafael Pires de Lima, Los Alamos National Laboratory, and University of Oklahoma; Youzuo Lin, Los Alamos National Laboratory; and Kurt J. Marfurt, University of Oklahoma (INT. AUD.: 2)
Speaker: Rafael Pires De Lima

11:00 AM ... Anisotropic moveout correction using a Hough transform neural network Janaki Vamaraju and Minral K. Sen, UTIG – The University of Texas at Austin (INT. AUD.: 2)
Speaker: Janaki Vamaraju

11:25 AM ... Vertical resolution enhancement of seismic data with convolutional U-net Yonggyu Choi, Soon Jee Seol, and Joongmoo Byun, RISE.ML Lab., Hanyang University; and Young Kim, YK Geophysics (INT. AUD.: 3)
Speaker: Yonggyu Choi
Wednesday, 18 September 2019

**PS 1 Case Studies: Reservoirs, Overburden**

*Session Chairs: Julie Shemeta and Mirko van der Baan*

*Location: 217B*

**Synopsis:** Case histories covering geomechanics, fracture generation and fluid monitoring, innovative interpretation, and ambient noise analyses.

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8:30 AM...... **Is bedding-plane slip a common microseismic source during hydraulic fracturing?** James Rutledge, Schlumberger (INT. AUD.: 3)

Speaker: James Rutledge

8:55 AM...... **High-resolution insights into hydraulic fracturing strike-slip seismicity:** Hypocenter uncertainty, depth of initiation, and genesis mechanisms Jamie Rich, Austin Bailey, Samir Jreij, and Doug Klepacki, Cimarex Energy Co. (INT. AUD.: 3)

Speaker: Jamie Rich

9:20 AM...... **Microseismic interpretation with stress inversion** Jing Du, Total E&P Research and Technology, LLC; Bing Q. Li, Massachusetts Institute of Technology; Matthieu Vinchon, Total S.A.; and Sebastian Estrada, Total Austral (INT. AUD.: 4)

Speaker: Jing Du

9:45 AM...... **Depth-dependent fault slip potential** Jieyu Zhang and Mirko van der Baan, Department of Physics, University of Alberta, Canada (INT. AUD.: 3)

Speaker: Jieyu Zhang

10:10 AM...... **Resonating fluid filled fractures in passive seismic** Charles Sicking and Jan M. Vermilye, Ambient Reservoir Monitoring, Inc. (ARM); and Peter M. Malin, Advanced Seismic Instrumentation (ASIR) (INT. AUD.: 3)

Speaker: Charles Sicking

10:35 AM...... **Ambient noise multimode Rayleigh and Love wave tomography to determine the shear velocity structure above the Groningen gas field** M. Chmiel, Sisprobe; A. Mordret, MIT; A. Boué, Sisprobe; P. Boué and F. Brenguier, ISTerre, Univ. Grenoble Alpes; T. Lecocq, Royal Observatory of Belgium; R. Courbis and D. Hollis, Sisprobe; X. Campman, Shell International Exploration and Production; R. Romijn and W. VanderVeen, Nederlandse Aardolie Maatschappij; N. Arndt, Smeaheia in the northern North Sea; T. Lecocq, Royal Observatory of Belgium; and R. VanderVeen, Nederlandse Aardolie Maatschappij; N. Arndt, Smeaheia in the northern North Sea; and N. Arndt, Smeaheia in the northern North Sea; and N. Arndt, Smeaheia in the northern North Sea; S. Beauprétre, and R. Lynch, Sisprobe; and C. Gradon, ISTerre, Univ. Grenoble Alpes. (INT. AUD.: 3)

Speaker: Anna Boué

11:00 AM...... **Monitoring of fields using body and surface waves reconstructed from passive seismic ambient noise** Florent Brenguier, University of Grenoble Alpes; Aurelien Mordret, Massachusetts Institute of Technology; Richard Lynch and Roméo Courbis, Sisprobe; Xander Campbell, Shell International Exploration and Production; Pierre Boué, University of Grenoble Alpes; Małgorzata Chmiel, Sisprobe; Shujuan Mao, Massachusetts Institute of Technology; Tomoya Takano, Tohoku University; Thomas Leccooq, Royal Observatory of Belgium; Wim van der Veen, Nederlandse Aardolie Maatschappij; Sophie Postif, Shell International Exploration and Production; Dan Hollis, Sisprobe. (INT. AUD.: 1)

Speaker: Richard Lynch

11:25 AM...... **Attenuation tomography using recorded microseismicity in a mine** Himanshu Barthwal, University of Alberta, Canada; Frank J. Calixto, Institute of Mine Seismology, Australia; and Mirko van der Baan, University of Alberta, Canada (INT. AUD.: 3)

Speaker: Himanshu Barthwal

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Wednesday, 18 September 2019

**RC 4 Clastics and Carbonates**

*Session Chairs: Gokay Bozkurt and Sumit Verma*

*Location: 217A*

**Synopsis:** It’s all about the rocks. This session focuses on relating geoscience methods directly to geological objectives in various basins.

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8:30 AM...... **Geological and geophysical investigation of CO₂ storage site Smeaheia in the northern North Sea** Manzar Fawad, University of Oslo; and Nazmul Haque Mondol, University of Oslo and Norwegian Geotechnical Institute (INT. AUD.: 2)

Speaker: Manzar Fawad

8:55 AM...... **Identifying complicated lithologic reservoirs using an ‘alternative sweetness’ attribute: A case study of BZ-X oilfield in Bohai Sea/Shuanshan Kog** Xuntai Zhang, Jingchao Wu, Zhu Xia, and Long Pan, Bohai Petroleum Research Institute, CNODC/Tianjin Company, China (INT. AUD.: 3)

Speaker: Shuanshan Kong

9:20 AM...... **An integrated approach to the Haynesville: The links between geology, seismic, and production** Mark Letizia, Irina Yakovleva, Graham Spence, Ross Taylor, Kevin Chesser, Paola Fonseca, Ceri Davies, Mohammad Nassir, Vivek Swami, and Dale Walters, CGG (INT. AUD.: 3)

Speaker: Mark Letizia

9:45 AM...... **Sensitivity analysis of rock physics and seismic properties for Wolfcamp Shale** Jaewook Lee and David Lumley, University of Texas at Dallas (INT. AUD.: 3)

Speaker: Jaewook Lee

10:10 AM...... **Integration of seismic inversion results in the development and production of carbonate fields: Lessons learned, best practices** Yahui Yin, Hendro Prasetyo, Luis Pernia Soto, Laurent Schulbaum, Yoann Guilloux, Frédéric Merlet, Thierry Cadoret, and Yannick Schildberg, TOTAL (INT. AUD.: 3)

Speaker: Yahui Yin

10:35 AM...... **3D seismic reservoir characterization of Marrat Formation in Central Kuwait** Ali Al-Enezi, Maitham Ebrahim, Kuwait Oil Company; Nicolas Hawie and Hender De Almeida, Beicip-Franlab (INT. AUD.: 3)

Speaker: Ali Al-Enezi

11:00 AM...... **Reservoir characterization for Najmah-Marrat formation in Mutriba field, Kuwait, integrating rock physics and pre-stack simultaneous inversion** Rajesh Rajagopal and Alanood Al-Otaibi, Kuwait Oil Company (INT. AUD.: 3)

Speaker: Alanood Al-Otaibi

11:25 AM...... **Prospectivity of mid Cretaceous using broadband full azimuth seismic through geostatistical inversion technique: A case study from Kuwait** Mohammed Hameed, Muneera Al Awadh, and Mohammed Hafez Abdul Razak, Kuwait Oil Company (INT. AUD.: 3)

Speaker: Hameed Mohammed
Wednesday, 18 September 2019

ORAL SESSIONS

8:30 AM...... P-wave modulus dispersion and attenuation caused by squirt flow in cracks with rough walls Simón Lissa and Beatriz Quintal, University of Lausanne, Switzerland (INT. AUD.: 1)
Speaker: Simón Lissa

8:55 AM...... Rock physics of hydraulic fractures Zhishuai Zhang, Jing Du, and Gary M. Mavko, Stanford University, Total E&P Research and Technology, LLC (INT. AUD.: 2)
Speaker: Zhishuai Zhang

9:20 AM...... Carbonate microstructures from measured velocity and attenuation spectra via simulated annealing Morten Jakobsen, University of Bergen; Clive McCann and Jeremy Sothcott, University of Reading (INT. AUD.: 3)
Speaker: Morten Jakobsen

9:45 AM...... Influence of reservoir shale physical properties on the multi-field coupling of fracturing fluid-shale interactions Long Chang, Hongkui Ge, Yinghao Shen, Xiaojiong Wang, Tongyan Liu, and Rongyan Huang, China University of Petroleum, Beijing (INT. AUD.: 3)
Speaker: Long Chang

10:00 AM...... Numerical simulation of coal seam effects on ultrasonic wave induced mechanical vibration enhancing permeability Qian Zhao and Huihui Xing, School of Earth and Environmental Sciences, University of Queensland (INT. AUD.: 6)
Speaker: Qian Zhao

10:35 AM...... Modelling the effects of capillary hysteresis on the normal compliance of individual fractures Santiago G. Solazzi, University of Lausanne, Switzerland; Nicolás D. Barbosa, University of Geneva, Switzerland; J. Germán Rubino, CONICET, Centro Atómico Bariloche – CNEA, Argentina; Klaus Holliger, University of Lausanne, Switzerland; Zhejiang University, China (INT. AUD.: 5)
Speaker: Santiago Solazzi

11:00 AM...... Tendencies in hydraulically conductive fractures’ patterns in vicinity of major faults Nikita Dubinya, The Schmidt Institute of Physics of the Earth of the Russian Academy of Sciences (INT. AUD.: 3)
Speaker: Nikita Dubinya

11:25 AM...... 3D elastic rock physics template inversion for reservoir parameters of gas hydrate-bearing sediments Haojie Pan, Yan Zhang, Hongbing Li, and Shengjuan Cai, Research Institute of Petroleum Exploration & Development (INT. AUD.: 3)
Speaker: Haojie Pan

Wednesday, 18 September 2019

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ORAL SESSIONS

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8:30 AM...... Accurate quasi-SV traveltimes in 3D transversely isotropic media with vertical axis of symmetry using a high-order fast-sweeping-based eikonal solver Amit Padhi and Mark Willis, Halliburton (INT. AUD.: 3)
Speaker: Amit Padhi

8:55 AM...... Sixth order accurate SBP finite difference wave simulation in isotropic media with irregular surface and fluctuating interfaces Junqiu Zhang and Ying Rao, China University of Petroleum (Beijing) (INT. AUD.: 4)
Speaker: Junqiu Zhang

9:20 AM...... Identifying and quantifying gas hydrate by joint analysis of P-wave velocity and resistivity Tao Liu and Xuewei Liu, China University of Geosciences (Beijing); Tieyuan Zhu, The Pennsylvania State University (INT. AUD.: 2)
Speaker: Tao Liu

9:45 AM...... Traveltine calculation and Raytracing based on fast marching method with a staggered grid finite-difference scheme Ziduo Hu, Wei Liu, and Linghe Han, Research Institute of Petroleum Exploration & Development-Northwest (NWGI), Petrochina (INT. AUD.: 5)
Speaker: Ziduo Hu

10:10 AM...... Higher-order dynamic ray tracing in ray-centred coordinates Einar Iversen, University of Bergen; Bjørn Ursin, Norwegian University of Science and Technology; Teemu Saksala, Rice University; Joonas Ilmavirta, University of Jyväskylä; and Maarten V. de Hoop, Rice University (INT. AUD.: 3)
Speaker: Einar Iversen

10:35 AM...... Improved efficiency of ray tracing by using adaptive step size control in anisotropic media Aurelian Roeser and Serge A. Shapiro, Freie Universität Berlin (INT. AUD.: 3)
Speaker: Aurelian Roeser

11:00 AM...... Marine vibrator: Source wavefield modeling Sander W. Losnedahl, UIO/PGS; Okwudili C. Orji, PGS; Leiv J. Gelius, UIO; and Walter Söllner, PGS (INT. AUD.: 2)
Speaker: Okwudili Orji
Wednesday, 18 September 2019
SPET 2 Enhanced Seismic Imaging
Session Chairs: Carlos Calderon and Gladys Gonzalez
Location: 214D
Synopsis: New solutions to a variety of challenges in depth imaging, including the computing environment/platform.

8:30 AM...... Rough topography and complex subsurface geology: A case study using Common Reflection Surface (CRS) and Reverse Time Migration (RTM) to enhance seismic imaging
Guido Gierse and Thomas Fieseler, TEECEsolutions GmbH; Sandra Arevalo, TEECEsolutions LLC; and Hector Alfonso and Jeny Navarro, Ecopetrol (INT. AUD.: 1)
Speaker: Guido Gierse

8:55 AM...... Successful subsurface imaging in the Marcellus Shale Play with mega 3D seismic surveys using advance processing technologies: From pilot study to production
Jinming Zhu, Chesapeake Energy Corporation; and Trevor Coulman, CGG (INT. AUD.: 3)
Speaker: Jinming Zhu

9:20 AM...... Integration of geology and geophysics to significantly improve seismic imaging at Campeche deep water: A case study
Speaker: Michael O’Brien

9:45 AM...... Adaptive multiscale processing of challenging 3D seismic data for first-break picking, FWI and imaging
Andrey Bakulin, Ilya Silvestrov, and Maxim Dmitriev, Geophysics Technology, EXPEC Advanced Research Center, Saudi Aramco (INT. AUD.: 1)
Speaker: Andrey Bakulin

10:10 AM...... Improved fracture basement imaging by unveiling diffraction energy
Speaker: Riaz Alai

10:35 AM...... Event-driven workflows for large-scale seismic imaging in the cloud
Philipp A. Witte and Mathias Louboutin, Georgia Institute of Technology, Henyk Modzelewski, The University of British Columbia; Charles Jones and James Selavage, Osokey Ltd.; Henley-on-Thames, U.K.; and Felix J. Herrmann, Georgia Institute of Technology (INT. AUD.: 2)
Speaker: Philipp Witte

11:00 AM...... A heuristic to optimize the execution cost of distributed seismic processing programs on the cloud
Nicholas T. Okita and Tiago A. Coimbra, CEPETRO/UNICAMP; Martin Tygel, CCES/CEPID; and CEPETRO/UNICAMP, and Edson Borin, IC/UNICAMP and CEPETRO/UNICAMP (INT. AUD.: 2)
Speaker: Nicholas Okita

11:25 AM...... A seismo-electric inverse problem with well-log data and borehole-confined acquisition
Aimé Fournier, Charles-Henri Clerget, and Pawan Bharadwaj, MIT Earth Resources Laboratory; and Alexandr Merciu and Gjertrud Skar, Equinor (INT. AUD.: 2)
Speaker: Aimé Fournier

Wednesday, 18 September 2019
SPMI 4 Q-Imaging, Elastic and Other Imaging Methods
Session Chairs: Jun Cai and Paul Williamson
Location: 214C
Synopsis: Includes discussion of papers in the areas of Q-propagation, Q migration, elastic wave propagation, elastic RTM, and elastic LSRTM.

8:30 AM...... Broadband finite-difference Q-compensation engine for accurate Q-RTM
Tong Zhou, Michigan State University; Wenyi Hu, Advanced Geophysical Technology Inc.; and Jiuyuan Ning, Peking University (INT. AUD.: 4)
Speaker: Tong Zhou

8:55 AM...... A generalized stabilization scheme for seismic Q compensation
Yufeng Wang, Dongzhuo Li, and Jerry M. Harris, Department of Geophysics, Stanford University (INT. AUD.: 3)
Speaker: Yufeng Wang

9:20 AM...... Robust data-driven Q-interface imaging
Bei Li, Yunnye Elita Li, and Jizhong Yang, Department of Civil and Environmental Engineering, National University of Singapore. (INT. AUD.: 3)
Speaker: Bei Li

9:45 AM...... Up/down separation of P-P and P-S images for elastic reverse time migration
Peng Guo, Deep Earth Imaging FSP, The Commonwealth Scientific and Industrial Research Organisation (CSIRO); and George A. McMechan and Li Ren, Center for Lithospheric Studies, The University of Texas at Dallas (INT. AUD.: 3)
Speaker: Peng Guo

10:10 AM...... True-amplitude waveform inversion with the quasi-elastic wave equation
Zongcai Feng and Gerard Schuster, King Abdullah University of Science and Technology (INT. AUD.: 3)
Speaker: Feng Zongcai

10:35 AM...... Elastic reverse time migration in irregular tunnel environment based on polar coordinate system
Yinming Qu, China University of Petroleum; Jinli Li, Institute of Geophysical Geochemical Exploration, Chinese Academy of Geological Sciences; and Zhenchun Li, China University of Petroleum (Huadong) (INT. AUD.: 4)
Speaker: Yinming Qu

11:00 AM...... Reverse time migration using controlled-order water-bottom-related multiples
Yanbao Zhang and Yike Liu, Institute of Geology and Geophysics, Chinese Academy of Sciences; and Xuejian Liu, Geophysics Group, Los Alamos National Laboratory (INT. AUD.: 3)
Speaker: Zhang Yanbao

11:25 AM...... Least-squares reverse time migration based on pure qP-wave equation in TTI media
Xinru Mu, Jianping Huang, Xu Guo, and Yinming Qu, China University of Petroleum (East China) (INT. AUD.: 3)
Speaker: Xinru Mu
Wednesday, 18 September 2019

SPMNR 3 Noise Attenuation, Sampling, Signal Reconstruction
Session Chairs: Frederico Melo and Gordon Poole
Location: 304B
Synopsis: Practical and algorithmic advances in noise attenuation, sampling, and signal reconstruction for scalar and vector data.

8:30 AM...... 3D attenuation of aliased ground roll on randomly undersampled data Stephen K. Chiu, In-Depth Geophysical (INT. AUD.: 3)
Speaker: Stephen Chiu

8:55 AM...... Cleaning up first arrivals in the cross-spread domain Stewart Trickett, Juniper Bay Software (INT. AUD.: 3)
Speaker: Stewart Trickett

9:20 AM...... Vector-valued seismic data denoising via widely-linear autoregressive models Breno Bahia and Mauricio D. Sacchi, University of Alberta (INT. AUD.: 3)
Speaker: Breno Bahia

9:45 AM...... High-dimensional center filtering method based on block matching Liqi Zhang and Huazhong Wang, Tongji University (INT. AUD.: 5)
Speaker: Liqi Zhang

10:10 AM... Multi-domain surface multiple leakage extraction using local primary-and-multiple orthogonalization Dong Zhang, Eric Verschuur, and Shan Qu, Delft University of Technology; and Yangkang Chen, Zhejiang University (INT. AUD.: 3)
Speaker: Dong Zhang

10:35 AM... Interbed demultiple and converted wave attenuation in shallow water Guyana Carlos Espinoza, Frederico Xavier de Melo, Zhiming Wu, and Jing Wu, WesternGeco; Qinbo Liao, Jose Omana, Diana Sineva, Fred Shirley, and Qunshan Zhang, Repsol (INT. AUD.: 3)
Speaker: Carlos Espinoza

11:00 AM... Least-squares reverse time migration with prism waves Maksym Kryvohuz, Shell International Exploration and Production Inc.; and Henning Kuehl, Shell Global Solutions Canada (INT. AUD.: 2)
Speaker: Maksym Kryvohuz

11:25 AM... Seismic image interpolation from irregular locations to a 3D grid using dynamic time warping Ben Gremillion and Sergey Fomel, The University of Texas at Austin (INT. AUD.: 3)
Speaker: Ben Gremillion

Wednesday, 18 September 2019

VSP 1 Applications, Imaging, and Analysis
Session Chairs: Werner Heigl and Joshua Ulla
Location: 303B
Synopsis: A range of papers covering different aspects of VSP acquisition, processing, and analysis.

8:30 AM...... Understanding cable coupling artifacts in wireline-deployed DAS VSP data Mark E. Willis, Xiang Wu, William Palacios, and Andreas Ellmuthaler, Halliburton (INT. AUD.: 3)
Speaker: Mark Willis

8:55 AM...... Salt/sediment proximity to delineate salt boundaries with P and PS waves using seismic while drilling in the Gulf of Mexico B. Jensen and J. Bayer, Shell E & P; Y. Li, T. Chen, and K. Matson, Shell International E & P (INT. AUD.: 2)
Speaker: Bryce Jensen

9:20 AM...... Seismic while drilling using a large-aperture ocean bottom array Flavio Poletto, Cinzia Bellezza, and Piero Corubolo, OGS; Alex Goertz, Endre Vange Bergfjord, and John Even Lindgård, OCTIO (INT. AUD.: 3)
Speaker: Flavio B. Poletto

9:45 AM...... Joint imaging with primaries and multiples of VSP data by GRT migration Wuqun Li and Weijian Mao, Center for Computational and Exploration Geophysics, State Key Laboratory of Geodesy and Earth’s Dynamics, Institute of Geodesy and Geophysics, Chinese Academy of Sciences; and Quan Liang, University of Chinese Academy of Sciences (INT. AUD.: 5)
Speaker: Wuqun Li

10:10 AM... Transmitted PS waves to discriminate fracture anisotropy from structural effects on azimuthal VSP (AzVSP) signatures Ali Sayed, Schlumberger; Robert Stewart, University of Houston; and Dhananjay Kumar, BP (INT. AUD.: 2)
Speaker: Ali Sayed

10:35 AM... Estimation of Q in the presence of full waveform scattering effects in VSP data Rie Nakata, MIT; David Lumley, University of Texas at Dallas; Gary Hampson, DownUnder GeoSolutions; Kurt Nihei, Lawrence Berkeley National Laboratory; and Nori Nakata, MIT (INT. AUD.: 3)
Speaker: Rie Kamei

11:00 AM... Simultaneous accelerometer and optical fibre multi-azimuth walk-away VSP experiment: Newell County, Alberta, Canada Kevin W. Hall, Kevin L. Bertram, Malcolm Bertram, and Kris Innanen, CREWES/University of Calgary; and Don C. Lawton, CMC Research Institutes Inc. (INT. AUD.: 2)
Speaker: Kevin Hall

11:25 AM... Integralional anisotropic earth-model building using vertical and horizontal-vibrator VSP data Shujaat Ali, Schlumberger; Jimming Zhu, Chesapeake; and Ali Sayed, Schlumberger (INT. AUD.: 3)
Speaker: Shujaat Ali
**Wednesday, 18 September 2019**
**ACQ 5 Marine Ocean Bottom Seismic and Borehole**
**Session Chairs: Peter Eick and Klaas Koster**
**Location: 221A**

**Synopsis:** Seven marine papers with seismic innovations utilizing ocean bottom nodes or cables and one paper presenting how to acquire continuous geophysical measurements while drilling.

1:50 PM...... Acquisition trial of DrillCAM: Real-time seismic with wireless geophones, instrumented top drive and near-bit accelerometer Andrey Bakulin, Emad Hemyari, and Ilya Silvestrov, Geophysics Technology, EXPEC Advanced Research Center, Saudi Aramco (INT. AUD.: 1)
Speaker: Andrey Bakulin

2:15 PM...... Design and analysis of OBC acquisition and observation system in large gas cloud area Zhijun Zhang and Dekui Xu, CNOOC-Ltd-Tianjin (INT. AUD.: 3)
Speaker: Zhijun Zhang

2:40 PM...... Precise depth and subsidence measurements during deepwater OBN surveys Paul Hatchell, Hugo Ruiz, Audun Libak, Brad Nolan, and Remy Agersborg, Shell International Exploration and Production Inc. and OCTIO Gravitude AS (INT. AUD.: 3)
Speaker: Paul Hatchell

3:05 PM...... Sparse nodes for velocity: Learnings from Atlantis OBN full-waveform inversion test Jiawei Mei, Zhigang Zhang, Feng Lin, Rongxin Huang, and Ping Wang, CGG; Cheryl Mifflin, BHP (INT. AUD.: 2)
Speaker: Jiawei Mei

3:30 PM...... Hexasource compact source acquisition for improved imaging in an OBC campaign across the Edvard Grieg field Per Eivind Dhelie, Vidar Danielsen, and Jan Erik Lie, Lundin Norway; David Tilling, Richard Whitebread, Michael Hooke, and Francesca Tynanam, Schlumberger; and Mark Ramsay, Shearwater (INT. AUD.: 3)
Speaker: Per Eivind Dhelie

3:55 PM...... Leading a new deep water OBN acquisition era: Two 2017-2018 GoM OBN surveys Qingsong Li, William Slopey, Francis Rollins, and Frederic Billette, BP; Carsten Udengaard and BJ Thompson, Magseis-Fairfield (INT. AUD.: 3)
Speaker: Qingsong Li

4:20 PM...... Seismic modeling for a velocity survey at Atlantis Dianne Ni, Andrew Brenders, Joseph Dellinger, Jean-Paul van Gestel, and Qingsong Li, BP (INT. AUD.: 3)
Speaker: Dianne Ni

4:45 PM...... Designing an exploration scale OBN: Acquisition design for subsalt imaging and velocity determination Joakim Blanch, Jon Jarvis, and Chris Hurren, BHP; Yan Liu and Lingli Hu, CGG (INT. AUD.: 1)
Speaker: Joakim Blanch

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**Wednesday, 18 September 2019**
**AVOSI 3 Workflows**
**Session Chairs: Jorge Estrada and Arcangelo Sena**
**Location: 217D**

**Synopsis:** Impact on AVA and seismic inversion analysis with enhanced processing to the input seismic data.

1:50 PM...... Amplitude friendly inverse Q filtering Tim Seher, Elena Kokoshina, and Sarah Spoors, Spectrum Geo Ltd. (INT. AUD.: 3)
Speaker: Tim Seher

2:15 PM...... A practical data-driven method for applying amplitude inverse Q that preserves amplitude variations with offset N. Ratnatt, S. Baldock, and H. Masoomzadeh, TGS (INT. AUD.: 3)
Speaker: Neil Ratnatt

2:40 PM...... Seismic data conditioning is an essential step for facies prediction Denis Alexeenko, Ikon Science; and Russell Exley, Summit Exploration and Production Limited (INT. AUD.: 3)
Speaker: Denis Kremer

3:05 PM...... AVO friendly seismic amplitude scaling in high impedance contrast surface conditions Ali F. AlJishi, Mustafa A. AlMarzooq, Mohammad I. Babli, and Mamadou S. Diallo, Saudi Aramco (INT. AUD.: 3)
Speaker: Ali AlJishi

3:30 PM...... Calculation method of reservoir energy density based on seismic low-frequency information and its application Xin Luo, Xuehua Chen, Yingkai Qi, Wei Jiang, and Jie Zhang, Chengdu University of Technology (INT. AUD.: 3)
Speaker: Xin Luo

3:55 PM...... Compensating for migration stretch to improve the resolution of S-impedance and density inversion Swetal Patel, Francis Oyebanji, and Kurt Marfurt, University of Oklahoma (INT. AUD.: 2)
Speaker: Swetal Patel

4:20 PM...... Estimation of reservoir elastic parameters via full-wavefield redatuming: Comparison of approaches Aayush Garg and D. J. Verschuur, Delft University of Technology (INT. AUD.: 3)
Speaker: Aayush Garg

4:45 PM...... Impedance inversion of the karst reservoir using diffraction Linghe Han, PetroChina Research Institute of Petroleum Exploration and Development Northwest; Kun Xiang and Evgeny Landa, Tel Aviv University (INT. AUD.: 4)
Speaker: Linghe Han
**Wednesday, 18 September 2019**

**BG 2 Acoustic Methods 2**

*Session Chairs: Tom Bratton and Yaping Zhu*

*Location: 217C*

**Synopsis:** This session presents studies of several borehole methods utilizing acoustic waves at various scales.

1:50 PM...... **Revisiting sonic imaging with 3D slowness time coherence**
Nicholas Bennett, Adam Donald, Takeshi Endo, Abbjarn Lund Johansen, Gabriela Martinez, and Erik Wilemakaer, Schlumberger (INT. AUD.: 3)

Speaker: Nicholas Bennett

2:15 PM...... **Shear-wave sonic imaging of deep structure using structure-guided velocity model**
Brian Hornby, Ran Zhou, Kary Green, and Saied Beshry, Halliburton; Shehab El Dien, MF; Kuwait Oil Company (INT. AUD.: 3)

Speaker: Brian Hornby

2:40 PM...... **Quantitative imaging of fractures around a borehole using linear slip theory and elastic least-squares migration**
Shohei Minato, Delft University of Technology and OYO Corporation; Ranajit Ghose and Kees Wapenaar, Delft University of Technology (INT. AUD.: 3)

Speaker: Shohei Minato

3:05 PM...... **Double alternate-polarity multiple measurements in borehole acoustics**
Anna Przebindowska and Tim Geerits, Baker Hughes, a GE company (INT. AUD.: 4)

Speaker: Tim Geerits

3:30 PM...... **A statistical proxy method for shear slowness estimation from dipole measurements**
Xuekai Sun, Beijing Research Center, Saudi Aramco; Chris Ayadiuno, EXPEC ARC, Saudi Aramco; and Wei Li, Beijing Research Center, Saudi Aramco (INT. AUD.: 4)

Speaker: Xuekai Sun

3:55 PM...... **Estimation of scatterer locations and subsurface velocities using scattered tube waves observed during a crosswell survey**
Norikatsu Nakata and Rie Nakata, MIT; and Ziqiu Xue, RITE (INT. AUD.: 3)

Speaker: Norimitsu Nakata

4:20 PM...... **Quantitative cement evaluation from LWD: acoustic data**
Ruijia Wang, Richard Coates, and Jiajun Zhao, Halliburton (INT. AUD.: 3)

Speaker: Ruijia Wang

4:45 PM...... **Leveraging multiple source locations and the total wavefield to create a more robust salt proximity survey: Gulf of Mexico example, Tahiti Field**
Trevor Bollmann, Bryan Harvey, David Dushman, George Rhoads, and Robert Shank, Chevron North America Exploration and Production Company; and Jakob Haldorsen, READ AS (INT. AUD.: 3)

Speaker: Trevor Bollmann

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**Wednesday, 18 September 2019**

**FWI 7 Theory and New Development**

*Session Chairs: Lei Fu and Fuchun Gao*

*Location: 225B*

**Synopsis:** Theoretical advancement in uncertainty, optimization, multiparameter, and finite-frequency.

1:50 PM...... **A gradient based MCMC method for FWI and uncertainty analysis**
Zeyu Zhao and Mrinal K. Sen, Institute for Geophysics, University of Texas at Austin (INT. AUD.: 4)

Speaker: Zeyu Zhao

2:15 PM...... **A multi-scale full waveform inversion method - staging wavenumber components and layer-stripping**
Zeyu Zhao and Mrinal K. Sen, Institute for Geophysics, University of Texas at Austin (INT. AUD.: 3)

Speaker: Zeyu Zhao

2:40 PM...... **Fréchet kernels based on a fractional viscoacoustic wave equation**
Guangchi Xing and Tieyuan Z, Department of Geosciences, The Pennsylvania State University (INT. AUD.: 3)

Speaker: Guangchi Xing

3:05 PM...... **Visualizing the misfit landscape for full waveform inversion**
Muhammad Izzatullah, King Abdullah University of Science and Technology, Tristan van Leeuwen, Utrecht University; and Daniel Peter, King Abdullah University of Science and Technology (INT. AUD.: 4)

Speaker: Muhammad Izzatullah

3:30 PM...... **A dual formulation for time-domain wavefield reconstruction inversion**
Gabrio Rizzuti and Mathias Louboutin, Georgia Institute of Technology; Rongrong Wang, Michigan State University; Emmanouil Daskalakis, University of British Columbia; and Felix Herrmann, Georgia Institute of Technology (INT. AUD.: 3)

Speaker: Gabrio Rizzuti

3:55 PM...... **Single parameter full waveform inversion in fluid-saturated porous media**
Qingjie Yang, Khalifa University; and Alison Malcolm, Memorial University of Newfoundland (INT. AUD.: 5)

Speaker: Qingjie Yang

4:20 PM...... **Extension of Gel’fand-Levitan-Marchenko solution for layered acoustic media to including oblique incidence for simultaneous p-v inversion**
Ru-Shan Wu and Huijing He, Modeling and Imaging Laboratory, EPS University of California (INT. AUD.: 3)

Speaker: Ru-Shan Wu

4:45 PM...... **Finite-frequency tomography using the generalized Rytov approximation**
Wenjun Xu, Department of Mathematics, Tongji University; Bo Feng, Wave Phenomena and Inversion Imaging Group (WPI), School of Ocean and Earth Science, Tongji University, and Modeling and Imaging Laboratory, University of California, Santa Cruz; Ru-Shan Wu, Modeling and Imaging Laboratory, University of California, Santa Cruz; Huazhong Wang, Wave Phenomena and Inversion Imaging Group (WPI), School of Ocean and Earth Science, Tongji University (INT. AUD.: 3)

Speaker: Bo Feng
Wednesday, 18 September 2019
INT 5 Depth: Control and Imaging
Session Chairs: Fuping Zhu and Jeremy Zimmerman
Location: 221B
Synopsis: Demonstration of depth techniques intended to improve accuracy of domain conversion and depth imaging.

1:50 PM...... Simultaneous automatic well-to-seismic tie and wavelet phase estimation Gabriel R. Gelpi, Facultad de Ciencias Astronómicas y Geofísicas, Universidad Nacional de La Plata and CONICET; Daniel O. Pérez, Facultad de Ciencias Astronómicas y Geofísicas, Universidad Nacional de La Plata and CONICET and YPF Tecnología S.A.; and Danilo R. Velis, Facultad de Ciencias Astronómicas y Geofísicas, Universidad Nacional de La Plata and CONICET (INT. AUD.: 3)
Speaker: Gabriel Gelpi

2:15 PM...... Application of processing and interpretation integration in low-profile structural depth prediction Dekui Xu, Gang Peng, Xing Li, and Hongbo Ding, SINOPEC; and Nanjing Branch (INT. AUD.: 3)
Speaker: Xu Dekui

2:40 PM...... Seismic spectrum decomposition using flattened multiple seismic traces Zhizhou Huo, Petroleum Exploration and Production Research Institution, SINOPEC; Bo Zhang and Yihuai Lou, The University of Alabama; and Xiwei Liu, Petroleum Exploration and Production Research Institution, SINOPEC (INT. AUD.: 3)
Speaker: Yihuai Lou

3:05 PM...... A well-to-seismic calibration method for seismic data in depth domain Hongmei Luo, Yiran Xing, Changjiang Wang, Peijie Yang (INT. AUD.: 5)
Speaker: Hongmei Luo

3:30 PM...... A concise method to estimate fracture parameters in the VFTI media Zhengqian Ma, Xingyao Yin, Zhaoyun Zong, and Yuanyuan Tan, China University of Petroleum (East China) (INT. AUD.: 2)
Speaker: Zhengqian Ma

Speaker: Marie Etchebe

4:20 PM...... Extended-POCS 5D technology and enhanced depth imaging leads to improved well planning and geosteering performance of the unconventional shale gas reservoirs David Hren, King Sim Lee, and Tianjiang Li, In-Depth Geophysical, Inc.; and Kai Zhang and Casey Hagbo, Chevron (INT. AUD.: 3)
Speaker: David Hren

Wednesday, 18 September 2019
IS 1 Induced Seismicity: Observations, Analysis, and Processes 2
Session Chairs: Douglas Klepacki and Jeffrey Nunn
Location: 302B
Synopsis: Earthquakes of anthropogenic origin are an important societal issue. This session presents observations, data mining/analysis, and modeling that explore processes/conditions that control induced seismicity.

Speaker: Samir Jeje

2:15 PM...... Data processing of a local seismological network for West Texas seismicity characterization Dmitri Merzlikin, Alexandros Savvaidis, and Stefanie Whittaker, The University of Texas at Austin; and Ibinabo Bestmann, University of Alberta (INT. AUD.: 2)
Speaker: Dmitry Merzlikin

2:40 PM...... Near-realtime management of induced seismicity during an EGS stimulation Peter Eric Malin, Advanced Seismic Instrumentation and Research; Grzegorz Kwiatek and Georg Dresen, GFZ German Geosciences Center Potsdam; and Tero Saarno, St1 Deep Heat Oy (INT. AUD.: 3)
Speaker: Peter Malin

3:05 PM...... Global optimization of arrival picking for microseismic events Zhichao Yu, Peking University, Zhonghua Mao, Shengli Branch, Geophysical Company, SINOPEC; Yuyang Tan, University of Science and Technology of China; and Guiting Hou and Chuan He, Peking University (INT. AUD.: 4)
Speaker: Zhichao Yu

3:30 PM...... Earthquake clusters show temporal changes in shear-wave anisotropy in the US midcontinent Keith Nolte and Georgies Tsoulias, The University of Kansas, Department of Geology (INT. AUD.: 3)
Speaker: Keith Nolte

3:55 PM...... Clustering in fluid-induced seismicity and what it tells us about its source Martin Schoenball, Lawrence Berkeley National Laboratory (INT. AUD.: 4)
Speaker: Martin Schoenball

4:20 PM...... An analytical model for head waves recorded as first arrivals in downhole microseismic measurement Shogo Masaya, INPEX (INT. AUD.: 3)
Speaker: Shogo Masaya

4:45 PM...... Studying stress state and fault zone properties of source regions of induced seismicity using dynamic rupture models David Szafranski and Benchun Duan, Texas A&M University (INT. AUD.: 3)
Speaker: Dawid Szafranski
Wednesday, 18 September 2019
MLDA 6 Interpretation 3
Session Chairs: Vishal Das and Bruno de Ribet
Location: 221D
Synopsis: Concepts of machine learning in interpretation

1:50 PM...... Missing sonic log prediction using convolutional long short-term memory Nam Pham and Xinning Wu, The University of Texas at Austin (INT. AUD.: 3)
Speaker: Nam Pham
2:15 PM...... 3D convolutional neural networks for efficient fault detection and orientation estimation Tao Zhao, Geophysical Insights (INT. AUD.: 3)
Speaker: Tao Zhao
2:40 PM...... FaultNet: A deep CNN model for 3D automated fault picking Qie Zhang, Anar Yusifov, and Corey Joy, BP; Yunzhi Shi and Xinning Wu, The University of Texas-Austin (INT. AUD.: 1)
Speaker: Qie Zhang
3:05 PM...... Reducing training dataset bias for automatic fault detection Sébastien Guillon, Frédéric Joncour, Pierre Goutorbe, and Laurent Castanié, Total E&P Research and Technology USA Inc, Sunnyvale, CA (USA) (INT. AUD.: 3)
Speaker: Sébastien Guillon
3:30 PM...... Physics-guided machine learning identification of discrete fractures from double beam images Jiaxuan Li, Hao Hu, and Yingcai Zheng, Department of Earth and Atmospheric Sciences, University of Houston (INT. AUD.: 2)
Speaker: Jiaxuan Li
3:55 PM...... Improved well log classification using semi-supervised algorithms Michael W. Dunham, Alison Malcolm, and J. Kim Welford, Memorial University of Newfoundland (INT. AUD.: 3)
Speaker: Michael Dunham
4:20 PM...... Multi-channel convolutional neural network workflow for automatic salt interpretation Ruichao Ye, Young Ho Cha, Thomas Dickens, Tetyana Vdovina, and Cody MacDonald, ExxonMobil Upstream Research Company, Huseyn Denli and Wei Liu, ExxonMobil Research & Engineering Company; Mike Kovalski and Victoria som de Cerff, ExxonMobil Technical Computing Company (INT. AUD.: 1)
Speaker: Ruichao Ye
4:45 PM...... Automatic seismic facies interpretation based on an enhanced encoder-decoder structure Haoran Zhang, State Key Laboratory of Petroleum Resources and Prospecting, China University of Petroleum (Beijing) and CNPC Key Laboratory of Geophysical Prospecting, China University of Petroleum (Beijing); Yang Liu, State Key Laboratory of Petroleum Resources and Prospecting, China University of Petroleum (Beijing); Key Laboratory of Geophysical Prospecting, China University of Petroleum (Beijing); and China University of Petroleum (Beijing), Karamay Campus; Yuxi Zhang, State Key Laboratory of Petroleum Resources and Prospecting, China University of Petroleum (Beijing); and CNPC Key Laboratory of Geophysical Prospecting, China University of Petroleum (Beijing); and Hao Xue, CNOOC Research Institute Co., Ltd. (INT. AUD.: 3)
Speaker: Haoran Zhang

Wednesday, 18 September 2019
NS 4 Applications for Archaeology, Void, and Target Detection
Session Chairs: Michelle Proulx and Blair Schneider
Location: 221C
Synopsis: Near-surface applications and case histories in archaeology, void and shallow target recognition.

1:50 PM...... The application of spectral energy algorithm based on the GPR reflected wave for detecting coal mining area Yaohua Li, Xu Li, Hyunjin He, and Liu Dai (INT. AUD.: 3)
Speaker: Yaohua Li
2:15 PM...... Real-time anomaly detection using dynamic time warping of GPR signals Abolfazl Saghafi, University of the Sciences in Philadelphia; Sajad Jazayeri, Sanaz Esmaeili, and Chris P. Tsokos, University of South Florida (INT. AUD.: 2)
Speaker: Sajad Jazayeri
2:40 PM...... Location of buried artillery positions using near-surface geophysical techniques T. Dean, A. Costall, N. Sik, A. Pethick, and D. Howman; Curtin University – Exploration Geophysics; and J. Blylevens, Royal Australian Artillery Historical Society of Western Australia (INT. AUD.: 1)
Speaker: Alex Costall
3:05 PM...... Ground penetrating radar survey of site 14DC320: Utilizing geophysical methods to protect Native American burials B.B. Schneider, University of Kansas; and R.J. Hoard, Kansas Historical Society (INT. AUD.: 3)
Speaker: Blair Schneider
3:30 PM...... Applicability of combined GPR and Gradiometer to detect buried shallow targets for near-surface investigations Iftekhar Alam, William Piwonka, and James Atkins, University of Tennessee; and Joseph Panzik, University of South Florida (INT. AUD.: 2)
Speaker: William Piwonka
3:55 PM...... Reclaiming history: Using ground penetrating radar to identify the location of antebellum African American cemeteries Michelle Proulx, Department of Geology, University of Kansas; and R Shane McGary, Department of Geology and Earth Science, James Madison University (INT. AUD.: 3)
Speaker: Michelle Proulx

Seismic Inversion
By Gerard T. Schuster
Purchase your copy in the Book Mart located in the Convention Center Lobby.
Wednesday, 18 September 2019
NS 5 Imaging and Modeling 2
Session Chairs: Niels Grobbe and Chester Weiss
Location: 225C
Synopsis: This session presents the latest modeling techniques for near-surface applications.

1:50 PM...... Analysis of near-field seismic wave scattering patterns
Zhaojun Zong and Tianjun Lan, China University of Petroleum (East China) (INT. AUD.: 3)
Speaker: Tianjun Lan

2:15 PM...... Near-surface characterization using vertical array seismic
data from smart DAS upholes Abdulrahman Alshuhail, Ilya
Silvestrov, Ali Aldawood, and Andrey Bakulin, Geophysics
Technology, EXPEC Advanced Research Center, Saudi Aramco;
and Mazen Alawaji, King Saud University, Saudi Arabia (INT.
AUD.: 2)
Speaker: Abdulrahman Alshuhail

2:40 PM...... Improved resolution of ground penetrating radar full-
waveform inversion by using cone penetration test data:
A synthetic study Zhen Zhou, Anja Klotsche, Agrosphere
(IBG-3), Institute of Bio- and Geosciences, Forschungszentrum
Jülich, and Centre for High-Performance Scientific Computing
in Terrestrial Systems, HPSC TerrSys, Geoverbund ABC/J; Nils
Güting, Agosphere (IBG-3), Institute of Bio- and Geosciences,
Forschungszentrum Jülich; and Peleg Haruzzi, Harry Vereecken,
and Jan van der Kruk, Agosphere (IBG-3), Institute of Bio-
and Geosciences, Forschungszentrum Jülich, and Centre for High-
Performance Scientific Computing in Terrestrial Systems, HPSC
TerrSys, Geoverbund ABC/J (INT. AUD.: 3)
Speaker: Zhen Zhou

3:05 PM...... Crosshole seismic testing with pseudo 3D geometry:
tomographic data for characterization of construction
sites Vladimir Ignatev, Andrey Konkov, and Ivan Polikarpov,
Geodevice LLC; Alexander Oshkin and Alexey Turchkov, Moscow
State University (INT. AUD.: 2)
Speaker: Vladimir Ignatev

3:30 PM...... Application of tomographic static correction method without
ray tracing in piedmont area of Western China Jie Wu,
Shengtao Zang, Xiaowei Wang, Jiaqing Sun, and Huan Yuan,
PetroChina Research Institute of Petroleum Exploration &
Development-Northwest (INT. AUD.: 3)
Speaker: Jie Wu

3:55 PM...... Time-frequency domain phase denoising based on S
transformation Long Yin, Jing Zeng, and Handong Huang,
China University of Petroleum (Beijing) (INT. AUD.: 3)
Speaker: Long Yin

Wednesday, 18 September 2019
PS 2 Locations, Magnitudes and Derived Information
Session Chairs: Jamie Rich and James Rutledge
Location: 217B
Synopsis: This session contains novel algorithms to obtain event
locations, detect fluid resonances and bedding slip, and obtain
accurate event magnitudes.

1:50 PM...... 3D anisotropic elastic time-reverse imaging of surface-recorded
microseismic data Can Oren and Jeffrey Shragge,
Center for Wave Phenomena, Colorado School of Mines
(INT. AUD.: 6)
Speaker: Can Oren

2:15 PM...... Passive seismic full waveform inversion with unknown onsets
in an orthorhombic anisotropic medium Hanchen Wang
and Tariq Alkhalifah, King Abdullah University of Science and
Technology (INT. AUD.: 3)
Speaker: Hanchen Wang

2:40 PM...... Microseismic imaging of real passive data with GmRTM
Yuwei Wang, Southwest Petroleum University, Chengdu,
Sichuan, China; Nori Nakata, Massachusetts Institute of
Technology, Cambridge, MA, USA; Yusuke Kumano, Japan
Petroleum Exploration Co., Ltd., Research Center, Chiba, Japan;
and Hidehiko Shimizu, JGI Inc, Tokyo, Japan (INT. AUD.: 4)
Speaker: Yuwei Wang

3:05 PM...... Optimizing detection of microseismic events by receiver
selection on surface monitoring Dmitry Alexandrov and
Leo Eisner, Seismik s.r.o.; Jacek Trojanowski, Institute of
Geophysics, Polish Academy of Sciences; Umair bin Waheed,
Sanlinn Isma’il Ebrahim Kaka, and Stewart Alan Greenhalgh,
Department of Geosciences, King Fahd University of Petroleum
and Minerals (INT. AUD.: 3)
Speaker: Dmitry Alexandrov

3:30 PM...... A fuzzy c-means assisted AIC workflow for arrival picking
on downhole microseismic data Eduardo Valero Cano, Jubran
Akram, and Daniel Peter, King Abdullah University of Science
and Technology, Leo Eisner, Seismik s.r.o. (INT. AUD.: 3)
Speaker: Eduardo Valero Cano

3:55 PM...... Automated mapping of hydraulic fractures using bedding-
plane slip events David W. Eaton and Scott Pellergrino,
Department of Geoscience, University of Calgary (INT. AUD.: 3)
Speaker: David Eaton

4:20 PM...... Magnitude calibration of imaging-based microseismic
locations Adam Baig, Ben Witten, Sepideh Karimi, Dario
Baturan, and Emrah Yenier, Nanometrics, Inc. (INT. AUD.: 3)
Speaker: Adam Baig

4:45 PM...... Anisotropy effects on acoustic emission event location
Peng Wang and Feng Zhang, China University of Petroleum-
Beijing; and Xiang-Yang Li, British Geological Survey
(INT. AUD.: 3)
Speaker: Peng Wang
**ORAL SESSIONS**

**Wednesday, 18 September 2019**

**RC 5 Attributes, Transforms and Numerical Methods**

*Session Chairs: Gorka Leiceaga and Sumit Verma*

*Location: 217A*

**Synopsis:** A collection of theoretical investigations aimed at improving imaging and the physics linking seismic measurements to properties of interest.

1:50 PM...... Multichannel matching pursuit guided by spatial information indexing method  
**Lu Xu, Xingyao Yin, Zhaoyun Zong, and Kun Li,** China University of Petroleum, Shandong (INT. AUD.: 5)  
Speaker: Lu Xu

2:15 PM...... Seismic history matching in the low-dimensional model and data space using deep convolutional auto-encoder  
**Mingliang Liu** and **Dario Grana,** University of Wyoming (INT. AUD.: 2)  
Speaker: Mingliang Liu

2:40 PM...... Facies design and modeling based on probabilistic rock physics templates  
**Wei Xie** and **Kyle T. Spikes,** Department of Geological Sciences, Jackson School of Geosciences, The University of Texas at Austin (INT. AUD.: 3)  
Speaker: Wei Xie

3:05 PM...... Numerical simulation of faults formation using the discrete element method  
**Vadim Lisitsa,** Institute of Petroleum Geology and Geophysics SB RAS, Novosibirsk State University, Sobolev Institute of Mathematics SB RAS; **Dmitriy Kolyukhin** and **Vladimir Tcheverda,** Institute of Petroleum Geology and Geophysics SB RAS; **Victoria Volianskaya,** Rosneft (INT. AUD.: 3)  
Speaker: Vadim Lisitsa

3:30 PM...... Reflectivity decomposition: Theory method, synthetic example and application in the Midland Basin  
**Chen Liang,** Lumina Technologies, Inc.; **John Castagna,** University of Houston; and **Marcelo Benabentos,** CNOOC (INT. AUD.: 3)  
Speaker: Chen Liang

3:55 PM...... A depth domain adaptive seismic wavelets extraction method  
**Rui Zhang,** University of Louisiana at Lafayette; and **Zhiwen Deng,** BGP Inc. (INT. AUD.: 3)  
Speaker: Rui Zhang

4:20 PM...... Thin interlayer net thickness prediction method based on SVM algorithm and its application in reservoir description  
**Dongjia Hou,** Cai Li, Tao Yan, Yu Xiong, and Guangrui Xiao, CNOOC (INT. AUD.: 4)  
Speaker: Dongjia Hou

**Wednesday, 18 September 2019**

**SM 5 Methods and Applications**

*Session Chairs: Rie Kamei and Xin Wang*

*Location: 304A*

**Synopsis:** Methods to improve seismic modeling algorithms and their applications.

1:50 PM...... Hybrid high order fast sweep method for factored eikonal equation  
**Dong Cui,** Research Institute of Petroleum Exploration & Development, Petrochina; **Yujie Zhang,** China Earthquake Disaster Prevention Center; **Ying Hu,** Chuning Wang, Hao Shou, and **Nan Qin,** Research Institute of Petroleum Exploration & Development, Petrochina (INT. AUD.: 3)  
Speaker: Dong Cui

2:15 PM...... Application of the generalized finite element to the acoustic wave propagation  
**Edith Sotelo** and **Richard L. Gibson Jr.,** Texas A&M University (INT. AUD.: 3)  
Speaker: Edith Sotelo Gamboa

2:40 PM...... A fast sweeping method for P-wave traveltimes in attenuating VTI media with an irregular surface  
**Mengxu Wang,** **Jingyi Chen,** **Zhencong Zhao,** and **Yifei Bao,** Seismic Anisotropy Group, Department of Geosciences, The University of Tulsa (INT. AUD.: 4)  
Speaker: Mengxu Wang

3:05 PM...... A direct solver in 3D frequency-domain simulation of acoustic and elastic waves  
**Victor Kostin** and **Sergey Solovyev,** IPGG SB RAS; **Andrey Bakulin** and **Maxim Dmitriev,** Saudi Aramco c/o Aramco Services Company (INT. AUD.: 2)  
Speaker: Sergey Solovyev

3:30 PM...... Improvement of sponge boundary condition for seismic wave modeling  
**Jun-Woo Lee** and **Dong-Joo Min,** Seoul National University (INT. AUD.: 1)  
Speaker: Jun-Woo Lee

3:55 PM...... Application of matched Z-transform perfectly matched layer in the numerical modeling of poroelastic wave equations  
**Zhenwang Xu,** Research Institute of Petroleum Exploration & Development of Liaohe Oilfield, PetroChina (INT. AUD.: 3)  
Speaker: Xu Zhenwang

4:20 PM...... 3D tensorial elastodynamics for anisotropic media  
**Tugrul Konuk** and **Jeffrey Shragge,** Center for Wave Phenomena, Colorado School of Mines (INT. AUD.: 3)  
Speaker: Tugrul Konuk

4:45 PM...... Numerical simulation of seismic wavefield due to cold seepage bubble plume  
**Peiran Duan,** Bingluo Gu, Zhenchun Li, and **Qingyang Li,** China University of Petroleum (East China) (INT. AUD.: 3)  
Speaker: Peiran Duan
Wednesday, 18 September 2019
SPET 3 Data Acquisition and Processing
Session Chairs: Stephen Cole and Meixia Wang
Location: 214D
Synopsis: New acquisition solutions and deblending techniques of simultaneous data.

1:50 PM...... An empirical assessment of deblending results on land vibroseis data
Dennis Yanchak, Peter Aaron, Ajay Jaiswal, David Monk, Gary Wool, and Mike Yates, Apache Corporation (INT. AUD.: 3)
Speaker: Dennis Yanchak

2:15 PM...... Normalized shaping regularization for robust separation of blended data
Qiang Zhao and Qizhen Du, China University of Petroleum (East China) (INT. AUD.: 3)
Speaker: Qizhen Du

2:40 PM...... Deblending of long-offset OBN data for velocity model building by sparse inversion of hyperboloidal components
Hassan Masoomzadeh, Simon Baldock, Zhaoqun Liu, Henrik Roende, Chuck Mason, and Himadri Pal, TGS (INT. AUD.: 3)
Speaker: Hassan Masoomzadeh

3:05 PM...... The continuous wavefields method: Using electro-mechanical sources
Stian Hegna, Tilman Klüver, Orji Okwudii, and Jostein Lima, PGS (INT. AUD.: 3)
Speaker: Stian Hegna

3:30 PM...... Improving seismic data completion and efficiency using tensors
Jonathan Popa, Susan Minkoff, and Yifei Lou, University of Texas at Dallas (INT. AUD.: 2)
Speaker: Jonathan Popa

3:55 PM...... Deblending of marine field simultaneous source data based on the seislet transform
Junhui Cao, China University of Geosciences (Wuhan); Eric Verschuur, Delft University of Technology; Hanming Gu, China University of Geosciences (Wuhan); and Lie Li, Zhanjiang Branch of CNOOC Limited (INT. AUD.: 3)
Speaker: Cao Junhui

4:20 PM...... Hyperbolic median filtering and singular spectrum analysis for simultaneous source separation
Aleksei Tarasov, Andrei Shuvalov, and Andrey Konkov, Saint Petersburg State University; Vladimir Ignatev and Ivan Polikarpov, Geodevice LLC; and Alexander Oshkin, Moscow State University (INT. AUD.: 2)
Speaker: Vladimir Ignatev

4:45 PM...... Processing technology of broadband, wide-azimuth and high-density (BWH) seismic data: Case study of mid-deep imaging in Songliao Basin, Northeast China
Huahui Zeng, Qin Su, Xiaomei Zhang, Lei Lv, Shuhai Qie, and Huijie Meng, Northwest Petroleum Geol Inst. (INT. AUD.: 2)
Speaker: Huahui Zeng

Wednesday, 18 September 2019
SPMI 5 Novel Imaging Methods and Applications 2
Session Chairs: Ping Wang and Paul Webster
Location: 214C
Synopsis: Novel application of migration algorithms: Kirchhoff, WEM, and RTM, and with application examples.

1:50 PM...... Analyses on diving-wave imaging artifacts in RTM and an effective removal strategy based on wavelength-dependent smoothing
Bingkai Han, Zhe Yan, Yongjie Tang, Shaoqying Liu, and Hanming Gu, China University of Geoscience (Wuhan) (INT. AUD.: 4)
Speaker: Bingkai Han

2:15 PM...... Fourier finite-difference wave-equation migration in tilted transversely isotropic media with an improved solution for coefficient estimation
Chen Tang, Yang He, Jian Mao, and Jianming Sheng, TGS (INT. AUD.: 3)
Speaker: Chen Tang

2:40 PM...... Illumination compensation of shadow zones in extended least squares migrated images by solving the linear inverse problem in tomographic full waveform inversion
Rahul Sarkar and Biondo Biondi, Stanford University (INT. AUD.: 5)
Speaker: Rahul Sarkar

3:05 PM...... The azimuth angle domain common image gathers extraction by Kirchhoff migration
Shouwei Liu, Shanghai QFZYGE Inc.; Huazhong Wang, WPI, Tongji University; and Meng Zhang, Shengli Oilfield, SINOPEC (INT. AUD.: 4)
Speaker: Shouwei Liu

3:30 PM...... Horizon oriented residual prestack migration to zero offset
J.F. Schneider, Bureau of Applied Geophysics (INT. AUD.: 2)
Speaker: Joerg Schneider

3:55 PM...... Applying the refraction migration method to image a deep interface in Xinjiang, China
Yang Shen and Jie Zhang, University of Science and Technology of China (INT. AUD.: 3)
Speaker: Yang Shen

4:20 PM...... Receiver ghost imaging using vertical cable seismic data for methane hydrate exploration
Ehsan Jamali Hondori, Masafumi Kato, and Eiichi Asakawa, Research and Development Department, JGI Inc.; and Hitoshi Mikada, Department of Civil and Earth Resources Engineering, Kyoto University (INT. AUD.: 2)
Speaker: Ehsan Jamali Hondori

4:45 PM...... Reverse time migration using a wavefield domain dynamic approach
Peterson Nogueira, UFBA/INCT-GP/FAPESB & SENAI CIMATEC; Victor Leite, SENAI CIMATEC; and Milton J. Porsani, CPGG/IGEO/UFBA & INCT-GP/CNPq (INT. AUD.: 4)
Speaker: Peterson Santos
Wednesday, 18 September 2019
SPMNR 4 Advances in Processing Methods and Applications
Session Chairs: Cintia Lapilli and Madhav Vyas
Location: 305
Synopsis: Novel processing methods applied to data conditioning, data reconstruction, and imaging tasks.

1:50 PM...... Seismic data denoising with mathematical morphological filters Z. Liu, D. Wheaton, and B. Wang; TGS (INT. AUD.: 3)
Speaker: Zhaojun Liu
2:15 PM...... Up-down separation and debubble using a multicomponent non-stationary prediction-error filter Kaiwen Wang, Joseph Jennings, and Jon Claerbout, Stanford University (INT. AUD.: 2)
Speaker: Kaiwen Wang
2:40 PM...... Source deghosting Jan-Willem Vrolijk and Gerrit Blacquière, Delft University of Technology (INT. AUD.: 3)
Speaker: Jan-Willem Vrolijk
3:05 PM...... Blended data separation and primary estimation via closed-loop SRME based on the 3D L1-norm sparse inversion Tiexing Wang, D.J. Verschuur, Jing Sun, Deli Wang (INT. AUD.: 4)
Speaker: Tiexing Wang
3:30 PM...... Surface-related multiple elimination with deep learning Ali Siahkoohi, School of Computational Science and Engineering, Georgia Institute of Technology, Dirk J. Verschuur, Faculty of Applied Sciences, Delft University of Technology, and Felix J. Herrmann, School of Computational Science and Engineering, Georgia Institute of Technology (INT. AUD.: 3)
Speaker: Ali Siahkoohi
3:55 PM...... A 3D methodology for residual and diffracted multiple attenuation Maiza Bekara, Lian Duan, and Mamdouh Salem, PGS (INT. AUD.: 5)
Speaker: Maiza Bekara
4:20 PM...... Imaging with surface multiples on OBN data with large receiver gaps Aparajita Nath and Dirk Jacob Verschuur, Delft University of Technology (INT. AUD.: 3)
Speaker: Aparajita Nath
4:45 PM...... A study on the benefits of migration of primaries and multiples Umed Kakkhkorov, University of Stavanger Department of Energy Resources, Wiktor Waldemar Weibull, University of Stavanger, and Pierre-Yves Raya, Wintershall Norge AS (INT. AUD.: 3)
Speaker: Umed Kakkhkorov

Wednesday, 18 September 2019
SS 7 Machine Learning and Artificial Intelligence Applied to Geophysics
Session Chairs: Tamas Nemeth and Kenton Prindle
Location: 301B
Synopsis: Session to focus on applications of machine learning and artificial intelligence to subsurface workflows.

1:50 PM...... First-break automatic picking with fully convolutional networks and transfer learning Tao Xie, Geophysical Research Institute, China Oilfield Services Limited; Yue Zhao, China University of Petroleum; Xuming Jiao, Geophysical Research Institute, China Oilfield Services Limited; and Wenjing Song and Sanyi Yuan, China University of Petroleum (INT. AUD.: 5)
Speaker: Tao Xie
2:15 PM...... End-to-end deep neural network for seismic inversion Ke Wang, Laura Bandura, Dimitri Bevc, Shuxing Cheng, Jim DiSiena, Adam Halpert, Konstantin Osypov, Bruce Power, and Ellen Xu, Chevron Energy Technology Company (INT. AUD.: 2)
Speaker: Ke Wang
2:40 PM...... Transforming the subsurface data and application landscape with the open subsurface data universe forum Phillip Jong, Shell Global (INT. AUD.: 1)
Speaker: Phillip Jong
3:05 PM...... Machine learning: A deep learning approach for seismic structural evaluation Pablo Guillen, University of Houston; Carlos Cobos, German Larrazabal, and Agustin Diz, Repsol (INT. AUD.: 1)
Speaker: Pablo Guillen
3:30 PM...... 3D seismic facies classification using convolutional neural network and semi-supervised generative adversarial network Mingliang Liu and Weichang Li, Aramco Research Center — Aramco Services Company, Houston, USA; Michael Jervis and Philippe Nivlet, EXPEC ARC, Saudi Aramco (INT. AUD.: 4)
Speaker: Mingliang Liu
3:55 PM...... Coherent noise attenuation using machine learning techniques for land seismic processing Chengbo Li, Yu Zhang, Charles C. Mosher, and Hui Chen, ConocoPhillips (INT. AUD.: 3)
Speaker: Chengbo Li
4:20 PM...... Pre-stack inversion using a physics-guided convolutional neural network Reetam Biswas and Minial Sen, University of Texas - Austin; and Vishal Das and Tapan Mukerji, Stanford University (INT. AUD.: 2)
Speaker: Reetam Biswas
4:45 PM...... Extrapolated full waveform inversion with convolutional neural networks Hongyu Sun and Laurent Demanet, Massachusetts Institute of Technology (INT. AUD.: 3)
Speaker: Hongyu Sun

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Wednesday, 18 September 2019

SS 8 Surface Wave Method Applications
Session Chairs: Koichi Hayashi and Julian Ivanov
Location: 304B

Synopsis: These papers advance the surface wave method by addressing dispersion-curve imaging and estimations, inversion, and FWI approaches, which all contribute to accuracy improvements.

1:50 PM...... Retrieving Love wave dispersion curves from 3C ambient noise data using spatial autocorrelation (SPAC) method Koichi Hayashi, OYO Corporation/Geometrics Inc.; and Recep Cakir, Washington State Department of Natural Resources (INT. AUD.: 4)
Speaker: Koichi Hayashi

2:15 PM...... Selective-window processing for optimized surface wave imaging of passive data Sarah L. Morton, Julian Ivanov, and Richard D. Miller, Kansas Geological Survey (INT. AUD.: 3)
Speaker: Sarah Morton

2:40 PM...... Rayleigh wave inversion based on differential evolution simulated annealing method Yaoqun Wang, Xijun Wu, Kai Xing, Zhenliang Zhang, Hua Wang, and Guangmin Hu, University of Electronic Science and Technology of China, UESTC; and Yu Jia, Chengdu University of Technology (INT. AUD.: 1)
Speaker: Wang Yaojun

3:05 PM...... The high-speed inversion of Rayleigh wave and its application analysis YanYuefeng and Sun Chengyu, School of Geosciences, China University of Petroleum, Qingdao, China; Lin Tengfei, Department of Middle East E&P, Riped, PetroChina, Beijing, China (INT. AUD.: 3)
Speaker: Yuefeng Yan

3:30 PM...... Surface wave analysis sensitivity to a-priori information assumptions Julian Ivanov and Richard Miller, Kansas Geological Survey; Anthony Hoch, University of Kansas; and Shelby Peterie and Sarah Morton, Kansas Geological Survey (INT. AUD.: 3)
Speaker: Julian Ivanov

3:55 PM...... 3D wave-equation dispersion inversion of surface waves recorded on irregular topography Zhaolun Liu and Gerard Schuster, King Abdullah University of Science and Technology (KAUST); and Jing Li, Jilin University (INT. AUD.: 3)
Speaker: Zhaolun Liu

4:20 PM...... Robust surface-wave full-waveform inversion Dmitry Borisov, Princeton University; Fuchun Gao and Paul Williamson, Total EP Research and Technology; Frederik J. Simons and Jeroen Tromp, Princeton University (INT. AUD.: 3)
Speaker: Dmitry Borisov

4:45 PM...... From multichannel analysis to waveform inversion of shallow-seismic surface waves Yudi Pan, Lingli Gao, and Thomas Bohlen, Karlsruhe Institute of Technology, Germany (INT. AUD.: 3)
Speaker: Yudi Pan

Wednesday, 18 September 2019

ST 1 Theoretical Developments in Imaging, Inversion, and Wave Phenomena
Session Chairs: Bertrand Duquet and Kees Wapenaar
Location: 303B

Synopsis: Papers in this session cover a variety of theoretical developments involving numerical modeling of wavefield propagation, imaging, and inversion.

1:50 PM...... Imaging, focusing, and inversion with the linear sampling method Aaron Prunty and Roel Snieder, Colorado School of Mines (INT. AUD.: 3)
Speaker: Aaron Prunty

2:15 PM...... An exact imaging technique for the acoustic inverse scattering problem Aaron Prunty and Roel Snieder, Colorado School of Mines (INT. AUD.: 3)
Speaker: Aaron Prunty

2:40 PM...... Taming the divergent terms in the scattering series of Born by renormalization Xingguo Huang, Morten Jakobsen, and Ru-Shan Wu; University of Bergen, Department of Earth Science, Norway; University of California, Earth and Planetary Sciences, USA (INT. AUD.: 3)
Speaker: Xingguo Huang

3:05 PM...... Generalized Rytov approximation and its application in finite-frequency tomography Bo Feng, Wave Phenomena and Inversion Imaging Group (WPI), School of Ocean and Earth Science, Tongji University, Wenzjun Xu, Department of Mathematics, Tongji University; Ru-Shan Wu, Modeling and Imaging Laboratory, University of California, Santa Cruz; and Huazhong Wang, Wave Phenomena and Inversion Imaging Group (WPI), School of Ocean and Earth Science, Tongji University (INT. AUD.: 4)
Speaker: Bo Feng

3:30 PM...... Curvilinear finite-difference method for wavefield propagation with surface topography Wei Dai, Zhen Xu, Xin Cheng, Kun Jiao, and Denes Vigh, Schlumberger (INT. AUD.: 3)
Speaker: Wei Dai

3:55 PM...... Identification and focusing of edge diffractions with wavefront attributes Pavel Znak and Sergius Dell, University of Hamburg; Boris Kashtan, Saint Petersburg State University; and Dirk Gajewski, University of Hamburg (INT. AUD.: 3)
Speaker: Pavel Znak

4:20 PM...... Dynamic photoelasticity study of the Krauklis wave: The effects of fluid viscosity and fracture geometry Haitao Cao, Ezequiel Medici, and Roohollah Askari, Michigan Technological University (INT. AUD.: 3)
Speaker: Haitao Cao

4:45 PM...... Block-Krylov methods for multi-dimensional deconvolution Nick Luiken and Utrecht University; and Aayush Garg, TU Delft (INT. AUD.: 3)
Speaker: Nick Luiken
### POSTCONVENTION WORKSHOPS

Postconvention workshops are offered all day on Thursday and continue through noon Friday to accommodate same-day travel. Workshop passes are available for US$125 for members, US$225 for nonmembers, US$35 for students, and US$55 for student nonmembers, and include access to any or all postconvention workshops.

Please note that the number of seats available in each workshop is limited and offered on a first-come, first-served basis. If seats are available, movement between workshops will be permitted.

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<th>THURSDAY, 19 SEPTEMBER</th>
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<td>W-1: DAS Part 1: Recent Advances in Subsurface Characterization using Distributed Acoustic Sensing and the Road Ahead</td>
<td>Ge Zhan, Yingping Li, Bjorn Olofsson, Ge Jin, Michael Craven, Arthur Cheng, Elita Li, Michel Verliac, Xin Wang</td>
<td>Research Committee</td>
<td>302B</td>
<td>8:30 AM–5:00 PM</td>
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<tr>
<td>W-2: Advances with Land Seismic for Characterizing Reservoirs - Part 1</td>
<td>Christof Stork, Mike Perz, Bruce Hootman, Rodney Johnston</td>
<td>Research Committee</td>
<td>221D</td>
<td>8:30 AM–5:00 PM</td>
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<tr>
<td>W-3: Integrated Geophysical and Geomechanical Evaluation of Induced Seismicity</td>
<td>Azra Tutuncu, Stephan Gelinsky, Jacques Leveille, Cengiz Esmeroy, Dan Ebron, Ali Mese</td>
<td>Research Committee</td>
<td>221C</td>
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<tr>
<td>W-4: Machine Learning and Data Analytics Algorithms and Workflows for Geoscience Applications</td>
<td>Aria Abubakar, Sergio Chavez-Perez, Wenyi Hu, Anisha Kaul, Wei chang Li, Anoop Mullur</td>
<td>Research Committee</td>
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<tr>
<td>W-5: Value of High-frequency FWI Models</td>
<td>Ping Wang, Rongrong Lu, Uwe Albertin, Laurent Demanet, Adriano Gomes, Antonie Guillon</td>
<td>Research Committee</td>
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<tr>
<td>W-6: Joint Imaging/Inversion of S-waves with P-waves: Advances in Characterizing Overburden, Elastic Models and Petrophysical Properties related to Conventional and Unconventional Reservoir Development</td>
<td>Jim Gaiser, Henri Houlevigue, Jim Simmons</td>
<td>Research Committee</td>
<td>221A</td>
<td>8:30 AM–5:00 PM</td>
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<tr>
<td>W-7: Frontiers in Seismic Reservoir Characterization</td>
<td>Jingfeng Zhang, Sengupta Madhumita, Per Avseth, Mrinal Sen</td>
<td>Research Committee</td>
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<tr>
<td>W-8: Real-Time Processing for Large-scale Streaming Seismic Data</td>
<td>Eileen Martin, Biondo Biondi</td>
<td>Research Committee</td>
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<tr>
<td>Title</td>
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<td>W-9: New Technologies in Marine Acquisition</td>
<td>Mariana Gherasim, Andrew Feltham, Josef Paffenholz, Rongxin Huang, Ray Abma, Andrew Brenders</td>
<td>Research Committee</td>
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<td>W-10: Misac Nabighian Memorial Workshop</td>
<td>Ed Bieger, Yaoguo Li, Jean M. Legault, Aline Tavares de Melo, Ken Witherly, Cara Schiek-Stewart, Manik Talwani</td>
<td>Mining Committee and Gravity and Magnetics Committee</td>
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<td>W-11: Long Term Monitoring of CO2 Geosequestration—Continuous Surveillance and Quantitative Interpretation</td>
<td>Guillaume Bergery, Don Lawton, Roman Pevzner, Stanislav Glubokovskikh, Martin Schoenball, Michel Verliac</td>
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<td>W-12: Interpretation and De-risking to Support Decision making in Development and Production</td>
<td>Adam Bucki, Jay Byers, Andrew Royle, Mariana Gherasim</td>
<td>Development and Production Committee</td>
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<td>W-13: Geophysical Monitoring of Unconventional Reservoirs</td>
<td>Daniel Ott</td>
<td>Development and Production Committee</td>
<td>225C</td>
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<td><strong>FRIDAY, 20 SEPTEMBER</strong></td>
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<td>W-14: DAS Part 2: What is next for DAS? Operator needs versus technology suppliers vision…</td>
<td>Michel Verliac, Ge Zhan, Mahmoud Farhadirosran, Albena Mateeva, Michael John Williams</td>
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<td>W-15: Advances with Land Seismic for Characterizing Reservoirs — Part 2</td>
<td>Christof Stork, Mike Perz, Bruce Hootman, Rodney Johnston</td>
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<td>W-16: Artificial Intelligence Frontiers in Geosciences</td>
<td>Vikram Jayaram, Atish Roy</td>
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<td>W-17: Seismic Attributes in the Age of Machine Learning</td>
<td>Long Jin, Jie Zhang, Oswaldo Davogusatto, Cataldo</td>
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<td>W-18: Least Squares Migration the Way Forward</td>
<td>Ping Wang, Faqi Liu, Gerald Schuster, Antoine Guittion, Hui Huang, Carlos Calderon</td>
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<td>W-19*</td>
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<td>W-20: Rock Physics Implications of CO2 Injection in the Subsurface</td>
<td>Hendratta Ali, Nazmul Haque Mondol, Manika Prasad</td>
<td>SEG Women’s Network Committee</td>
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<td>W-21: Ambient Noise Imaging and Monitoring for High-resolution Spatial and Temporal Near-surface Characterization and Exploration Seismology</td>
<td>Niels Grobbe, Sjoerd de Ridder</td>
<td>SEG Near-Surface Geophysics Technical Section</td>
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*Workshop canceled*
# SEG MIDDLE EAST: 2019–2020 EVENT CALENDAR

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<tr>
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<tr>
<td>Deep Gas Exploration and Future Development Workshop</td>
<td>7–9 Oct ’19</td>
<td>Abu Dhabi, UAE</td>
<td>Workshop</td>
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<td>Short Course by Julian Ivanov - Practical Seismic Surface Wave</td>
<td>19 Oct ’19</td>
<td>Abu Dhabi, UAE</td>
<td>Short Course</td>
<td>Registration Open</td>
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<td>Methods: Basics to Cutting Edge</td>
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<tr>
<td>5th International Conference on Engineering Geophysics (ICEG)</td>
<td>21–24 Oct ’19</td>
<td>Al Ain, UAE</td>
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<td>2019 3Q/4Q SEG Distinguished Lecturer John T. Etgen: Practical</td>
<td>24–31 Oct ’19</td>
<td>GCC Region</td>
<td>Distinguished Lecture</td>
<td>Registration Open</td>
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<td>Insights and Techniques in Seismic Velocity Estimation</td>
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<td>Practical Approach</td>
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<tr>
<td>New Advances in Land Geophysical Acquisition Technologies Workshop</td>
<td>5–7 Nov ’19</td>
<td>Muscat, Oman</td>
<td>Workshop</td>
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<td>SEG I KOC Workshop: Seismic Multiples — The Challenges and the</td>
<td>3–5 Dec ’19</td>
<td>Kuwait</td>
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<tr>
<td>International Petroleum Technology Conference (IP TC)</td>
<td>13–15 Jan ’20</td>
<td>Dhahran, Saudi Arabia</td>
<td>Conference</td>
<td>Registration Opens Soon</td>
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<tr>
<td>2nd SEG I DGS Workshop: Advances in Quantitative Seismic</td>
<td>15–16 Mar ’20</td>
<td>Bahrain</td>
<td>Workshop</td>
<td>Call for Abstracts closes 7 Nov ’19</td>
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<tr>
<td>Reservoir Characterization</td>
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<tr>
<td>14th Middle East Geosciences Conference and Exhibition (GEO)</td>
<td>16–19 Mar ’20</td>
<td>Bahrain</td>
<td>Conference</td>
<td>Registration Opens Soon</td>
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<tr>
<td>The AI Earth Exploration Workshop: Teaching the Machine How to</td>
<td>19–21 Apr ’20</td>
<td>Muscat, Oman</td>
<td>Workshop</td>
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<tr>
<td>Characterize the Subsurface</td>
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Contact Us: middleeast@seg.org | Tel: +97143724880 | Fax: +97143724204 | seg.org

**THERE’S ALWAYS ROOM FOR IMPROVEMENT**

SEG COMPETENCY MANAGEMENT SYSTEM • FREE FOR MEMBERS

SEG.ORG/CMS
More demand is placed on High Performance – Supercomputing (HPC) suppliers to process bigger data, faster than ever before, and this trend has become strikingly evident at recent SEG annual meetings.

The SEG, in cooperation with the Society of HPC Professionals (SHPCP), has assembled a group of HPC organizations that will offer technical presentations and showcase state-of-the-art equipment and applications.

The history of geophysics has been associated with computing technology from its inception, and has consistently provided challenges and opportunities to enhance hardware, software, and infrastructure solutions to match the performance and quality of the industry’s algorithms, data consumption, and exploration advances.

As a charitable service-based non-profit organization (NPO) educating and connecting the High Performance Computing user community to state of art technology for the purpose of optimizing business processes and workforce advancement. Our technology focus includes AI, cloud computing, data science, deep learning, machine learning and visualization utilized in applications ranging from manufacturing and engineering, financial services, life sciences, energy, academia and government.

The HPC Theater will deliver daily presentations of technical content with focuses on machine learning, analytics, visualization, and the Cloud.

Please refer to the Exhibition Floor Map on page 100 to find the Digital Arena, and visit our presenters at Booth #1851. Join us!

Visit www.hpcsociety.org to view the HPC Theater program
FOCUS ON COMMERCIAL TECHNOLOGY

MONDAY 12:00 PM

Ellis ................................................................. Booth #3833
Automatic Fault Extraction
Speaker: Sven Philit

Emerson ........................................................... Booth #1433
Democratization of technology: An essential component of the digital transformation
Speaker: Francisco Ortizoga

Geodevice LLC .................................................. Booth #2023
ARMT-5: New effective solution for electromagnetic studies in wide frequency range
Speaker: Aleksandr Simakov

Geophysical Insights ............................................ Booth #1038
Net reservoir discrimination through multi-attribute analysis at single sample scale
Speaker: Fabian Rada

GeoTomo LLC ..................................................... Booth #1829
GeoTomo and Z-Terra: Partners in time and depth imaging
Speaker: Dr. Öz Yilmaz

GEOVARIANCES ................................................. Booth #1045
Innovative and smart geostatistics-based workflow for efficient time-depth conversion, even when no velocity information is available. Software demo and case study.
Speaker: Jean-Marc Chautru

INT ................................................................. Booth #2843
Enabling subsurface oil and gas data to move to cloud services: Demo of OSUD using IVAAP deployed in AWS
Speaker: Olivier Lhemann

Katalyst Data Management .................................... Booth #1838
Subsurface digital transformation and data management: The iGlass Complete Life Cycle Solution
Speaker: Debasish Chatterjee

RADEXPRO EUROPE OÜ ......................................... Booth #2029
Real-time seismic QC and in-field processing in RadExPro seismic software: Land and Sea
Speaker: Artem Kats

Schlumberger ...................................................... Booth #2438
TBD
Speaker: TBD

Searcher Seismic .................................................. Booth #3941
Exploring the power of big data
Speaker: Joshua Thorp

Shearwater GeoServices ....................................... Booth #3332
Introduction to Reveal Software
Speakers: Aaron Lockwood and Huy Mai

TDI-Brooks International, Inc ................................. Booth #1029
Getting the right sample: Advances in seep hunting methods for offshore exploration
Speaker: Jayme McBee

MONDAY 1:00 PM

CoCoLink .......................................................... Booth #2223
Complete FWI over GPU computing with sufficient performance
Speakers: Dongjo Ha and Seungwon Ko

Enthought .......................................................... Booth #2445
Labeling seismic data for machine learning
Speaker: Ben Lasscock

EPI Group ......................................................... Booth #3742
Seisnetics: Advancing geophysical interpretation through AI
Speaker: Gehrig Schultz

Explor .............................................................. Booth #530
5 things you need to do before migrating your seismic to the cloud
Speaker: Dr. Chris Harrison

GeoComputing Group .......................................... Booth #3043
RIVA — the only cloud specifically built for oil & gas
Speaker: John Creevan

Land Seismic Noise Specialists ............................... Booth #3632
Addressing difficult land seismic scattered noise using new acquisition and processing technology
Speaker: Christof Stork

Ovation Data Services Inc ...................................... Booth #3325
In the cloud era: Data management opportunities and challenges for G&G data
Speaker: Gregory Servos

Sony ................................................................. Booth #1424
Sony Crystal LED: Bringing true color, contrast and resolution to the oil & gas industry
Speaker: Kevin O’Connor

The Open Group ................................................ Booth #1445
Open Subsurface Data Universe™ (OSDU) Demo
Speaker: Phillip Jong

This happy hour will be EPIC!

EMERGING PROFESSIONALS (EPIC) HAPPY HOUR
Tuesday, 4:30 PM–6:30 PM
Convention Center, 3rd Floor Terrace
TUESDAY 12:00 PM

dGB Earth Sciences...............................................Booth #4031
Discontinuity imaging using machine learning
Speaker: Kristoffer Rimaila

Ellis.................................................................Booth #3833
Geocellular Grid Generation
Speaker: Sebastien Lacaze

Geodevice LLC....................................................Booth #2023
Contemporary equipment for high and ultra-high
resolution marine seismic survey
Speaker: Vladimir Ignatev

Geophysical Insights............................................Booth #1038
Thin bed detection with unsupervised machine learning
Speaker: Dr. Tom Smith

GeoTomo LLC.......................................................Booth #1829
Reservoir characterization using TIPS:
Toolkit for integrating petrophysics to seismic
Speaker: Dr. Fred Hilterman

Katalyst Data Management..................................Booth #1838
Digitize the world: Capture maximum value deep within your data
Speaker: Patrick Meroney

MicroSeismic, Inc./FracRx......................................Booth #3634
FracRx, Just What the Dr. Ordered
Speaker: Peter Duncan

RADEXPRO EUROPE OÜ.........................................Booth #2029
Real-Time seismic QC and in-field processing in
RadExPro seismic software: Land and Sea
Speaker: Artem Kats

Schlumberger .....................................................Booth #2438
TBD
Speaker: TBD

Shearwater GeoServices.......................................Booth #3332
Marine acquisition & technology
Speakers: Mehul Supawala and Tim Brice

Searcher Seismic..................................................Booth #3941
Analyzing the performance of the global seismic fleet
Speaker: Warren Gray

TDI-Brooks International, Inc.................................Booth #1029
Choosing the right acquisition toolset for your geotechnical survey
Speaker: Nick Clark

Xi’an Shiyou University........................................Booth #1219
New advances in reservoir monitoring technology
Speaker: Dr. Jiaen Lin

TUESDAY 1:00 PM

Emerson.............................................................Booth #1433
Advanced Geoscience Workflows for Exploration and Field
Development of Shale Plays
Speaker: Joanne Wang

Enthought.........................................................Booth #2445
Accelerating seismic interpretation with machine learning
Speaker: Ben Lasscock

GeoComputing Group..........................................Booth #3043
RIVA — the only cloud specifically built for oil & gas
Speaker: John Creevan

EPI Group..........................................................Booth #3742
Seisnetics: Advancing geophysical interpretation through AI
Speaker: Gehrig Schultz

Explor ....................................................................Booth #530
Migrating seismic data to the cloud: Customer success stories
Speaker: Allan Chatenay

GEOVARIANCES..................................................Booth #1045
Innovative and flexible geostatistics-based workflow
for the most comprehensive uncertainty analysis on
depths, traps and reservoir volumes, considering faults
if any. Software demo and case study.
Speaker: Jean-Marc Chautru

INT .................................................................Booth #2843
Demo of IVAAP - deployed on AWS - using OSDU
(Open Subsurface Data Universe) to enable oil and gas
companies to leverage cloud services for subsurface data
Speaker: Olivier Lhemann

Ovation Data Services Inc...............................Booth #3325
In the cloud era: Data management opportunities
and challenges for G&G data
Speaker: Gregory Servos

Sony ....................................................................Booth #1424
Sony Crystal LED: Bringing true color, contrast and
resolution to the oil & gas industry
Speaker: Kevin O’Connor

The Open Group .................................................Booth #1445
Open Subsurface Data Universe™ (OSDU) Demo
Speaker: Phillip Jong
**WEDNESDAY 12:00 PM**

**Ellis** ................................................................. Booth #3833
Automatic Fault Extraction  
Speaker: Sven Philit

**Geodevice LLC** ......................................................... Booth #2023
Complex of high-resolution seismic techniques for surveying existing and under-construction objects  
Speaker: Vladimir Ignatev

**Geophysical Insights** ......................................................... Booth #1038
Seismic facies classification and fault detection using deep learning  
Speaker: Dustin Dewett

**GeoTomo LLC** ................................................................. Booth #1829
High resolution FWI near-surface imaging for shallow drilling hazards in the Permian Basin  
Speaker: Dr. Weizhong Wang

**GEOVARIANCES** ................................................................. Booth #1045
Getting rid of the footprints in seismic data that the standard geophysical filters have not succeeded to remove. Software demo and case study.  
Speaker: Jean-Marc Chautru

**Land Seismic Noise Specialists** ............................................. Booth #3632
Addressing difficult land seismic scattered noise using new acquisition and processing technology  
Speaker: Christof Stork

**Schlumberger** ................................................................. Booth #2438
TBD  
Speaker: TBD

**Shearwater GeoServices** ......................................................... Booth #3332
Shearwater Processing & Imaging  
Speaker: Mark Skinner

**WEDNESDAY 1:00 PM**

**Emerson** ................................................................. Booth #1433
Precision depthing for shale players improves well placement and steering  
Speaker: Elive Menyoli

**Enthought** ................................................................. Booth #2445
Augmented thin section characterization using machine learning  
Speaker: Ryan Swindeman

**EPI Group** ................................................................. Booth #3742
Seisnhetics: Advancing geophysical interpretation through AI  
Speaker: Gehrig Schultz

**GeoComputing Group** ......................................................... Booth #3043
RIVA — the only cloud specifically built for oil & gas  
Speaker: John Creevan

**Katalyst Data Management** ......................................................... Booth #1838
E-Brokerage for seismic data provides greater return via online data marketplace seismic zone  
Speaker: Trish Mulder

**Ovation Data Services Inc** ......................................................... Booth #3325
In the cloud era: Data management opportunities and challenges for G&G data  
Speaker: Gregory Servos

**RADEXPRO EUROPE OÜ** ......................................................... Booth #2029
Advanced processing of HR/UHR marine seismic: Efficient demultiple, hi-res marine statics, deghosting and more.  
Speaker: Sergey Buryak

**Searcher Seismic** ................................................................. Booth #3941
Taking the plunge into deep learning with billions of traces  
Speaker: Joshua Thorp

**Sony** ................................................................. Booth #1424
Sony Crystal LED: Bringing true color, contrast and resolution to the oil & gas industry  
Speaker: Kevin O’Connor

**The Open Group** ................................................................. Booth #1445
Open Subsurface Data Universe™ (OSDU) Demo  
Speaker: Phillip Jong

**Xi’an Shiyou University** ......................................................... Booth #1219
New advances in reservoir monitoring technology  
Speaker: Professor Jiaen Lin

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**FOCUS ON COMMERCIAL TECHNOLOGY**

**THE BAGS ARE BACK!**

The popular Business of Applied Geophysics (BAG) Plenary Sessions return and are included in your full delegate registration! Get down to business at SEG19!
JOIN THE SEG WOMEN’S NETWORK COMMITTEE AT THESE EXCITING EVENTS

9th Annual Networking Event of the SEG Women’s Network Committee
Monday, 16 September • 6:00 PM–8:00 PM • Convention Center, Room 220
This engaging event will bring professionals and students together for an opportunity to network, discuss current events and trends, and hear keynote speaker Allyson K. Anderson Book, Executive Director of the American Geosciences Institute, share her experiences with the crowd. Includes hors d’oeuvres and a cash bar.
Members/Nonmembers: $40
Students: $10
Tickets on sale through Sunday 15 September at 12:00 PM (CDT).

Postconvention Workshop: Rock Physics
Implications of C02 Injection in the Subsurface
Friday, 20 September • 8:30 AM–12:00 PM • Convention Center, Room 221C
Meet the international experts and practitioners who focus on the challenges and opportunities in applying rock physics techniques to image C02 and fluids interactions in the subsurface! This workshop is a must for geoscientists interested in the processes, imaging, and detection technologies to detect and quantify subsurface fluids and C02.
seg.org/am • #seg19
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<th>EXHIBITOR NAME</th>
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<td>CNPC Keylab of Geophysical Prospecting</td>
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<td>CoCoLink Corp, Subsidiary Company of Seoul Techno</td>
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