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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.
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### POSTER

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<td>Tuesday, 17 September 1:50 PM—4:20 PM</td>
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<td><strong>SPET 2:</strong> Enhanced Seismic Imaging</td>
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| **AVOSI P1:** Methodology 1 | **AVOSI P2:** Case Studies 2 | **AVOSI P5:** Methodology 5 |
| **RC P1:** Clastics, Carbonates and Facies | **RC P2:** Machine Learning | **RC P7:** Novel Methods |
| **BG P1:** Acoustic Methods 1 | **BG P2:** EM Methods | **RC P3:** Inversion RC P5:** Resolution, Attributes and Uncertainty |
| **MLDA P1:** Seismic Processing and Interpretation | **MLDA P4:** Seismic Processing and Interpretation 4 | **MLDA P5:** Seismic Processing and Interpretation 5 |
| **MLDA P3:** Seismic Processing and Interpretation 3 | **MLDA P4:** 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 |
| **INT P1:** Case Studies 2 | **RC P4:** Geomechanics, Fractures and Flow 2 | **RC P3:** Offshore Techniques |
| **RC P3:** Inversion | **RC P5:** Resolution, Attributes and Uncertainty | **RC P6:** Clastics, Carbonates, Volcanics and Igneous Lithology |
| **EMRS P3:** Inversion and Interpretation | **NS P2:** Novel Methods | **RC P7:** Novel Methods |
| **AVOSI P3:** Methodology 2 | **AVOSI P4:** Methodology 4 | **NS P3:** Seismic Processing and Applications |
| **FWI P5:** Regularization Techniques 1 | **FWI P6:** Field Applications and Practical Issues | **AVOSI P5:** Methodology 5 |
| **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 | **SM P2:** Novel Methods and Case Histories | **SPMI P4:** Elastic and Other Imaging Methods |
| **ACQ P2:** Land Seismic 3 | **ACQ P3:** Land Seismic 4 and Data Compression and Drone | **SM P3:** Novel Imaging Methods and Applications 3 |
| **SPMN R 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
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<td>NS P2 ................................ Novel Methods</td>
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<td>NS P3 ................................ Seismic Methods and Applications</td>
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<td><strong>SPMI: SEISMIC PROCESSING: MIGRATION</strong></td>
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<td><strong>PS: PASSIVE SEISMIC</strong></td>
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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
Speaker: Santiago L. Juranovic
Santiago L. Juranovic, DataSeismic Corp.
(INT. AUD.: 4)

2:15 PM...... A high-precision 3D acquisition case for the complex structures in Keshen Area
Speaker: Xu Zhou
Xu Zhou
(INT. AUD.: 3)

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

3:05 PM...... Improving seismic image resolution in a carbonate fracture cave region: A case study
Speaker: Naijian Wang
Naijian Wang
(INT. AUD.: 3)

3:30 PM...... The world's largest continuous 3D onshore and offshore seismic survey sets ambitious quality and turnaround targets
Speaker: Guillaume Cambois
Guillaume Cambois, Saif Al Mesaabi, Goodway, Consultant
(INT. AUD.: 3)

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)
Speaker: Kevin Werth
Kevin Werth
(INT. AUD.: 3)

4:20 PM...... A comparison of 3D multi-component (9C) data image volumes acquired with conventional and simultaneous source techniques (KWP Phase II)
Speaker: James Thomas
James Thomas
(INT. AUD.: 3)

4:45 PM...... Simultaneous vibroseis acquisition in West Texas: A premier survey
Speaker: Nicole Moldoveanu
Nicole Moldoveanu
(INT. AUD.: 3)

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
Speaker: Peter Mesdag
Peter Mesdag
(Schlumberger WesternGeco)
(INT. AUD.: 3)

2:15 PM...... Layer anisotropic elastic parameters inversion based on Fourier coefficients of azimuthally elastic impedance
Speaker: Lin Li
Lin Li
(China University of Petroleum, East China)
(INT. AUD.: 3)

3:05 PM...... A new anisotropic inversion method based on the sparse representation and dictionary learning
Speaker: Li Xinpeng
Li Xinpeng
(CGEG)
(INT. AUD.: 3)

3:30 PM...... Estimating indicators of oil-bearing fractured reservoirs from frequency components of azimuthal seismic data
Speaker: Wang Yaojun
Wang Yaojun
(CGEG)
(INT. AUD.: 3)

3:55 PM...... Study of a fractured reservoir by using the anisotropy of seismic wave attenuation
Speaker: Fatemeh Bouchaala
Fatemeh Bouchaala
(INT. AUD.: 3)

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

4:45 PM...... Pressure and stress assessment in anisotropic rocks
Speaker: Alexander Edwards
Alexander Edwards
(INT. AUD.: 3)
Monday, 16 September 2019
AVOSI 1 Case Studies 1
Session Chairs: Gokay Bozkurt and Satinder Chopra
Location: 217B
Synopsis: Application of seismic inversion and AVA 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.; Mrinal 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’ Andreasi, 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 Montevetchi, Ian Atkinson, Erin Gillis, Victoria Mitchell, Alice Spencer, and Richard Wright, Nalcor Energy Oil and Gas (INT. AUD.: 3)
Speaker: Nick Montevetchi

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 Haffinger, Dries Gisolf, Mengmeng Zhang, Anna Droujinina, and Panos Dougeris, Delft Inversion, Delft, The Netherlands; Seyedalireza 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, 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 Abdullah City for Science and Technology (KACST); and Tariq Alkhalfah, King Abdullah University of Science and Technology (KAUST) (INT. AUD.: 3)
Speaker: Zhen-dong 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, Shinnosuke Uchida, Ayato Kato, Yoshiharu Ito, and Sunao Takagi, JGMEC; Mike de Groot, Encana Corp.; and Shoji Hara, 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-Edouard 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; Zhengu 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, TEEware 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 Hiblun, Matt Hart, and Jian Mao, TGS (INT. AUD.: 3)
Speaker: Guy Hiblun

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 Etchebe, 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 Dai, Ping Chen, and Shuzheng Zhao, CNOOC China Limited, Tianjin Branch (INT. AUD.: 3)
Speaker: Tong Qin

JOIN US FOR A HOT TIME AND CELEBRATE LATIN NIGHTS!
JOIN US WEDNESDAY FOR THE WRAP-UP PARTY AND PAY ONLY $25 THIS YEAR!
See page 27 for details.
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 Kolbjørnsen, 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
3:05 PM...... Inpainting of local wavefront attributes using artificial intelligence Kirill Gadyshin, Institute of Petroleum Geology and Geophysics SB RAS, Novosibirsk State University; Ilya Silivstrov and Andrey Bakulin, EXPEC Advanced Research Center, Saudi Aramco (INT. AUD.: 1)
Speaker: Kirill Gadyshin
3:20 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 Zheng, 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 Xinming Wu, Bureau of Economic Geology; Luming Liang, Microsoft Applied Science Group; Yunzhi Shi, Zhicheng Geng, and Sergey Fomel, Bureau of Economic Geology (INT. AUD.: 3)
Speaker: Xinming 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 Zhifeng Deng, Chengwu Li, Guowen Chen, Jing Yang, Ruizhao Wang, Yonggui Hu, Shuijie An, Haili Wang, and Zhongdong Du, BGP Inc. (INT. AUD.: 4)
Speaker: Zhifeng 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 ground 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
**ORAL SESSIONS**

**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


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 geoaoustic 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, Dennery, St Lucia (INT. AUD.: 2)

Speaker: Saleh Al Nasser

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**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, Daewing Yoon, and Joongmoo Byun, RISE.ML Lab., Hanyang University (INT. AUD.: 3)

Speaker: Asghar Saleem

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

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**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, Kathleen 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, Sinopec 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: Lei Wang

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 Rodriguez, Hans Morales, Eduardo Jimenez, Jhon Quintero, Ruth Beltran, and Juan Solor, 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
Arthur Bustos, Jose Carlos Ruiz, Nestor Daniel Ortiz, Salvador Cruz, Alfredo Vazquez, Jorge Díaz de Leon Chagoya and Silvino Dominguez Garcia, PEMEX; and Josue Jurado Ramirez, Claudia Romero, Federico Fenoglio, Lucín Zhang, Monica Aquino Guerra, Liubov Mulesheva, 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 Converters, Tom Davis, and Ali Tura, Colorado School of Mines; David Curia, Wintershall Energía Argentina; and Christian Hanitzsch, Wintershall Norge AS (INT. AUD.: 4)
Speaker: Carlos Converters

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 Madruci, 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
Mónica 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: Mónica 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-Khaleel, 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 wavefield 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, ISTEerre; and Ludovic Mëtvier, Univ. Grenoble Alpes, ISTEerre 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, Jeffrey 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 Mehdad 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. Speglmich, CEPETRO/UNICAMP; Jorge H. Faccipieri, CCES/CCEP and CEPETRO/UNICAMP; Nicholas T. Okita, CEPETRO/UNICAMP; Tiago A. Coimbra, CEPETRO/UNICAMP and Martin Tygel, CCES/CEPETRO, and CEPETRO/UNICAMP (INT. AUD.: 2)
Speaker: João Henrique Speglmich
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

Microseismic Monitoring
By Vladimir Grechka and Werner M. Heigl
Purchase your copy in the Book Mart located in the Convention Center Lobby.

seg.org/newbooks

Monday, 16 September 2019
SS 1 Recent Advances and the Road Ahead
Session Chairs: Raymond Abma and Christine Krohn
Location: 301B
Synopsis: The talks include overview perspectives and examples of cutting-edge research for the hot-topics areas of unconventionals, FWI/imaging, machine learning and seismic acquisition.

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, Vasudhavan 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. Robertson, 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. Teanby, 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 Guanhua Huang, Michigan State University; Rami Nammour, Total E&P R&T USA; William W. Symes, Rice University; and Mohamed Doliaza, 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 Rafiliana, 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 Helperin, Earth and Environmental Sciences, University of Michigan; and Wychet 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 Gottschämmern, 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: Otunbo Village street, Iwaya Lagos Nelly Omoruyi and Kayode Ayedele, 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  
Speaker: P.I. 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?  
Speaker: Patrick Charron, Abderrahim Lafram, Eddy Brosille, and Benoit Santos Luis, Total S.A.; and Sergio Tchikanah, Emerson Jungo, Kacem Chikhi, 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  
Speaker: Didier Lecerf, Andrew Oates, Rebekah Brown, Elena Polyaeva, Francois Portaluri, Cyrille Reiser, David Raistrick, Adam Betteridge, and Jyoti 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  
Speaker: 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  
Speaker: Constantin Gerea, James Beckwith, Sjoerd de Ridder, Mohammad Shahrezaei, and Etes Bergounioux - TOTAL (INT. AUD.: 3)  
Speaker: Constantin Gerea

3:55 PM...... Central-difference time-lapse 4D seismic full waveform inversion  
Speaker: 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  
Speaker: 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  
Speaker: 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 hydophone.

8:30 AM...... Marine vibrator source: Modular projector system  
Speaker: Robert Telling, GeoServices LTD (INT. AUD.: 4)  
Speaker: Priyanka Dutta

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

9:20 AM...... The influence of layered water velocity on the node positioning in OBS seismic exploration  
Speaker: Wei Zhou and David Lumley, The University of Texas of Dallas (INT. AUD.: 3)  
Speaker: Wei Zhou

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

10:10 AM ... Virtual depth based low frequency marine air gun source design  
Speaker: Hiroaki Ozasa, IHI Corporation; Junichi Takekawa and Hitoshi Mikada, Kyoto University (INT. AUD.: 3)  
Speaker: Hiroaki Ozasa

10:35 AM ... Survey performance of deeply-towed marine seismic vibrator: Comparative study with imaging results from an airgun array  
Speaker: Guandong Ding, Cao Mingqiang, Quan Haiyan, Dong Tingui, Mao Hejiang, Zhang Xiaoming, and Zhu Chao, BGP, CNPC (INT. AUD.: 3)  
Speaker: Guandong Ding

11:00 AM ... Comparison of near field hydrophone and high-resolution 3D seismic data in a deepwater field  
Speaker: Hiroaki Ozasa, IHI Corporation; Eiichi Asakawa, Fumitoshi Murakami, and Ehsan Jamali Honori, JGI Corporation; Junichi Takekawa and Hitoshi Mikada, Kyoto University (INT. AUD.: 4)  
Speaker: Hiroaki Ozasa

11:25 AM ... A perturbed ghost model for estimating air-gun array signatures  
Speaker: Robert 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 Srichand Prajapati, Changcheng Liu, and Deva Ghosh, Universiti Teknologi PETRONAS (INT. AUD.: 3)
Speaker: Srichand Prajapati
9:20 AM...... Fracture-direction estimation by QVOA analysis: Validation by physical modeling Tatiana Chichinina, Elena Kazachtenko, and Vladimir Sabinin, Instituto Mexicano del Petroleo, Mexico; Dmitry Popov and Vycheslav 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 ... ∆V: 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/CO₂ reservoir and hydraulic fracture.

8:30 AM...... CSEM quantitative interpretation for reservoir property estimation and anti-model evaluation Jan Petter Morten, Jon Olav Jønsen, 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-Taijji, 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 CO₂ monitoring at Bell Creek, MT W. Anderson McAliley, Center for Gravity, Electrical, and Magnetic Studies, Department of Geophysics, Colorado School of Mines; Benjamin R. Bloss, Geology, Geophysics, and Geochemistry Science Center, United States Geologic Survey; Trevor Iorns 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 Wisley 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 Kuehi, 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; Siyuan Yang, Jiawei Mao, 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 Vandrasi, and Don Dobesh, CGG; and Alfredo Vazquez, PMex (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 Dzulkefl, 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-PRJ (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 Giraldo, 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. Zhdanov, 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-Capirotti and Yaoguo Li, Center for Gravity, Electrical, and Magnetic Studies, Department of Geophysics, Colorado School of Mines (INT. AUD.: 3)
Speaker: Elizabeth Maag-Capirotti
11:00 AM ... Estimative of gravity-gradient tensor components via fast iterative equivalent-layer technique Larissa S. Piaulino, Filipe C. L. Siqueira, Vanderlei C. Oliveira Jr., and Valeria C. F. Barbosa, Observatorio Nacional (INT. AUD.: 4)
Speaker: Larissa Piaulino
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
ORAL SESSIONS

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 Lubo-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 Yazeeed AlGudah, Moamen Soliman, and Ghassan AlRegib, Georgia Institute of Technology (INT. AUD.: 2)
Speaker: Yazeeed AlGudah

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 Lumlley, 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, Yihua Lou, and Hao Wu, the University of Alabama (INT. AUD.: 3)
Speaker: Yihua Lou

11:25 AM...... Depth domain pre-stack seismic inversion with depth and angle variant wavelets Rui Zhang, University of Louisiana at Lafayette; and Zhiwen 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; Mathues Oliveira and Emilio Vital Brazil, IBM Research; Sérgio Cersosimo, Galp; and Renato Cerqueira, IBM Research (INT. AUD.: 3)
Speaker: Rodrigo Ferreira

Speaker: David Lubo-Robles

DON'T MISS THE BOAT!
Riverboat shuttles are available to the convention center from SEG19 official hotels Monday–Wednesday. For schedule see page 30.
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 Minral 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 Akhalifah, 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 Geo 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 Minral 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

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

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 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 Christiana Spans, and Mathew Docherty, Woodside Energy LTD (INT. AUD.: 4) Speaker: Arturo Contreras


10:35 AM... Reservoir characterization through seismic inversion: A case study Binode Chetia, J. Nagaraju, 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

8:30 AM...... Variation in the dynamic shear modulus at saturation for synthetic clay-rich tight sandstones Dongqing Li, Sinoppec 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; Yvan Bashir and Ahmed Mohamed Ahmed Salim; 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 Xu Han, Genyang Tang, Yanxiao He, Chunhui Dong, Min Li, and Shangxu Wang, China University of Petroleum (Beijing) (INT. AUD.: 3) Speaker: Xu 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 Xufei, Yuan Xiong, 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 Tuanyu, 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 Antharamalu and Lev Vernik, Ikon Science Americas Inc., Houston (INT. AUD.: 3) Speaker: Venkatesh Antharamalu
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 visco-acoustic 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; Tieyuan Zhu, Department of Geoscience and Institute of Natural Gas Research, 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 Tieyuan 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), CNPC Key Laboratory of Geophysical Prospecting, China University of Petroleum (Beijing); and China University of Petroleum (Beijing), Karamay Campus; 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
Jinxiang 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; Jingye 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 advance 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. Klochkikhina, 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 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 OBN data Side Jin, 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: Side Jin
10:10 AM...... Reflection 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 Straw, 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 Bieniai, Eni; Stefano Tubaro, 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’Brian, 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 Réseaux - 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 Tonjan Robinson, Rutgers University, Newark; 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 Hahm, 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 Aleksii Titov, Gary Binder, Youfang Liu, James Simmons, and Alii Tura, Colorado School of Mines; and Grant Byerley and David Monk, Apache Corporation (INT. AUD.: 3)
Speaker: Aleksii 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 Daiwaiyan 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 Farhadiroshian, Silixa Ltd. (INT. AUD.: 3)
Speaker: Mahmoud Farhadiroshian
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 traveltime 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 Novaïs 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...... WEMVA 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 Hanefeld, Shell Global Solutions International BV; Tadas Kupovnickas, Shell International Exploration and Production Inc.; Nigel Mitchell, Shell Global Solutions International BV; and Sjimen 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 Audubert and Daniel Ortiz-Rubio, Total EP, France (INT. AUD.: 5)
Speaker: François Audubert

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; Kaijian 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 Straith, 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 Brasil Petróleo Ltda. (INT. AUD.: 3)
Speaker: Duane Johnson

11:00 AM...... A reduced-order basis approach for CO2 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 CO2 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 Naveed Iqbal, King Fahd University of Petroleum and Minerals, KSA (INT. AUD.: 3)
Speaker: Naveed Iqbal

2:15 PM...... Gradient recording in practice: A comparative field trial of a 5C land seismic gradient sensor Anastasia Poole and John Quigley, WesternGeco; Everhard Muyzert, Nihed Allouche, Pascal Edme and Nicolas Goujon, Schlumberger Cambridge Research (INT. AUD.: 3)
Speaker: Anastasia Moshchenko

2:40 PM...... Blended acquisition with temporally signatured/modulated and spatially dispersed source array Tomohide Ishiyama, ADNOC; Mohammed Ali, Khalifa University; Gerrit Blacquiere and Shotaro Nakayama, Delft University of Technology (INT. AUD.: 3)
Speaker: Tomohide Ishiyama

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

3:30 PM...... Deblending by sparse inversion: Case study on land data from Oman Li Peiming, Song Jiawen, Zhang Shaohua, Wang Wenchuang, Sun Pengyuan and Ma Yuanming, BGP, CNPC (INT. AUD.: 3)
Speaker: Jiawen Song

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

4:20 PM...... Source-over-cable marine acquisition with six sources in simultaneous mode Per Eivind Dhelie, Vidar Danielsen, Jan Erik Lie, and Emilie Davenne, Lundin Norway; Fredrik Andersson, Kurt Eggenberger, and Johan Robertsson, Seismic Apparition GmbH (INT. AUD.: 4)
Speaker: Per Eivind Dhelie

4:45 PM...... Deblending of simultaneous and flip-flop shooting of sparse node long offset seismic for refractive FWI Himadri S. Pal, Hassan Masoomzadeh, Henriq Roende, Zhaojun Liu, Duncan Bate, and Chuck Mason, TGS (INT. AUD.: 3)
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 Amir Babasafari and Deva Ghosh, Center of Seismic Imaging, Universiti Teknologi PETRONAS (INT. AUD.: 4)
Speaker: Amir Babasafari

2:15 PM...... AVAZ quantitative interpretation based on orthorhombic medium and its application in Sichuan Basin of China Kai Xu, Jinliang Tang, and Shixing Wang, Sinopec Geophysical Research Institute (INT. AUD.: 5)
Speaker: Kai Xu

2:40 PM...... Effective fracture identification by combining AVOZ and AVOZF inversion Sam Zandong Sun and Xingyi Wang, Lab for Integration of Geology and Geophysics (LIGG), China University of Petroleum (Beijing) (INT. AUD.: 4)
Speaker: Zandong (Sam) Sun

3:05 PM...... Inversion of reservoir porosity and permeability based on velocity dispersion in 3D two-phase orthotropic crack medium Xianwen Zhang, CNOOC Research Institute Ltd.; Deli Wang, Jilin University; Tingen Fan, Jingyu Zhang, and Xin Du, CNOOC Research Institute Ltd. (INT. AUD.: 5)
Speaker: Xianwen Zhang

3:30 PM...... Fracture prediction based on an improved anisotropy inversion: A shale reservoir fracture prediction case study 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 (INT. AUD.: 2)
Speaker: Tongcui Guo

3:55 PM...... Correcting residual HTI moveout and determining principal anisotropic azimuth in arbitrarily sampled image gathers using dynamic time warping Luke Decker, The University of Texas at Austin; and Quanshan Zhang, Repsol USA (INT. AUD.: 3)
Speaker: Quanshan Zhang

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

4:45 PM...... Study on impact factors of seismic wave frequency-dependent anisotropy in TI medium Yahua Yang, Xingyao Yin, and Danping Cao, China University of Petroleum, East China (INT. AUD.: 4)
Speaker: Yang Yahua
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...... Distributed acoustic sensing elastic least-squares reverse time migration
Ivan Lim Chen Ning and Paul Sava, Center for Wave Phenomena, Colorado School of Mines; Whitney Schultz and Jim Simmons, Reservoir Characterization Project, Colorado School of Mines (INT. AUD.: 2)
Speaker: Ivan Lim Chen Ning

Session Chairs: Colin Farquharson and Piyoosh Jaysaval
Location: 225C
EMRS 2 Modeling and Imaging Algorithms
Synopsis: Forward and inverse modeling algorithms and their improvements.

1:50 PM...... Parallel 3D modeling of marine controlled source electromagnetic data using survey decomposition
Dikun Yang, Southern University of Science and Technology; Shanshan Guan, Jilin University; and Zhiquang Chen, Southern University of Science and Technology (INT. AUD.: 3)
Speaker: Dikun Yang
2:15 PM...... 2.5D controlled-source electromagnetic inversion using very fast simulated annealing algorithm
Piyoosh Jaysaval, Debjanan Datta, Minral 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...... Cooperative deep learning inversion: Seismic-constrained CSEM inversion for salt delineation
Seokmin Oh, Kyuboh Oh, Daewing Yoon, Soon Jee Seol, and Joongmoo Byun, RISE.ML, Hanyang University (INT. AUD.: 4)
Speaker: Seokmin Oh
3:05 PM...... Equivalent wave field of diffusive controlled source electromagnetic (CSEM) data
Anton Ziockowski, University of Edinburgh; and Paul L. Stoffa, University of Texas - Austin (INT. AUD.: 3)
Speaker: Anton Ziockowski
3:30 PM...... Towards modeling the electromagnetic response of complex pipelines using the Method of Moments
Gurban Orujov, Ethan Anderson, and Andrei Swidinsky, Department of Geophysics, Colorado School of Mines; and Rita Streich, Shell Global Solutions International BV, Amsterdam, The Netherlands (INT. AUD.: 3)
Speaker: Gurban Orujov
3:55 PM...... Meshfree modelling of 3-D controlled-source EM data: A new method to treat the singular source terms
Jianbo Long, Debanjan Datta, and Colin G. Farquharson, Memorial University of Newfoundland (INT. AUD.: 3)
Speaker: Jianbo Long
4:20 PM...... 3D FETD forward modelling for transient electromagnetic methods using a grounded-wire source
Jianhui Li, and Xiangyun Hu, Institute of Geophysics and Geomatics, China University of Geosciences (Wuhan) (INT. AUD.: 2)
Speaker: Jianhui Li
4:45 PM...... A jumping regularization approach based on reconstruction of stabilizing functional for constrained inverse problem
Liting Rao, Jianshen Gao, and Bo Dang, Xi’an Shiyou University, Xi’an, China; Rui Guo, Tsinghua University, Beijing, China (INT. AUD.: 3)
Speaker: Liting Rao
**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. Pladys, R. Brossier, M. Irmaka, and N. Kamath, Univ. Grenoble Alpes, ISTerre; L. Métivier, Univ. Grenoble Alpes, ISTerre and Univ. Grenoble Alpes, CNRS (INT. AUD.: 3)  
Speaker: Arnaud Pladys

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 Alkalilahf, 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; and 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 Hyungsu 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

3:05 PM......  
**High resolution velocity and impedance estimation using 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

3:30 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
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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: Rafael Pires De Lima

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, Xueling 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, GeoTec (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. Nobes, 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 Nobes

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; Qingyun Li, Key Laboratory of Shale Gas and Geophysical Imaging, 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 traveltome 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
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
Hyunjun 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 Michael Shoemaker, Callon Petroleum Company (INT. AUD.: 3)
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, Genyeh Tang, Chunhui Dong, Liming Zhao, Chao Sun, Xu Han, and Shangxu 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 Dyaur, 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
3:05 PM...... New workflow of stratigraphic grid building from relative geological time model Sébastien Lacaze, Fabien Paquet, Nicolas Daynac, Benjamin Durot, and Agathe Carbonié, Élis (INT. AUD.: 2)
Speaker: Sébastien Lacaze
3:20 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
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
4:15 PM...... The physical simulation of the conjugate fault in ShaBei structural zone of Northwest Bozhong Sag, Bohai Sea Tao Li, Bu Shaofeng, Hua Kuo, and Sun Tielong, 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**

**SPMNR 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 Slab, 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, 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 Qiang 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: Qiang Guo

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 Verlici

**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 Leetaru, 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 In-situ Laboratory Konstantin Tertyshnikov and Roman Pevzner, Curtin University; Barry Freifeld, Class VI Solutions; Ludovic Ricard and Arsham Avijegon, CCSIRO (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 Tsollias, 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. Krabnenbuih, Yaoguo Li, and W. Andy McAulley, Center for Gravity, Electrical & Magnetic Studies (CGEM), Colorado School of Mines; Nathan Moodie and Trevor Iorns, Energy and Geoscience Institute, University of Utah; and Benjamin R. Bloss, United States Geological Survey (INT. AUD.: 3)

Speaker: Richard Krabnenbuih
Tuesday, 17 September 2019
SS 6 Seismic Advancements in the Permian
Session Chairs: Richard Pagel 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 Linses, 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, Chevron North America Exploration and Production Company; Gary Murphy, Chevron Energy Technology Company; and Denes Vigh, WesternGeco Schlumberger (INT. AUD.: 3)
Speaker: Gerar Murphy

3:30 PM...... Seismic-driven pore and fracture pressure prediction in the Permian Basin Ahmed Mohamed, CGG; and Kit Clemons, Vishnu Pandey, Bertrand Sex, 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 Gadyshin, 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 Yang, 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, Chuan-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 Barlass, WesternGeco (INT. AUD.: 3)
Speaker: Rupam Chakraborty

3:55 PM...... Prior model 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.: 2)
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

Additional notes:
- (INT AUD.: ) = indicates intended audience
- 1 = Little or no detailed knowledge of general topic area
- 2 = Heard of topic area but has no direct experience
- 3 = Some knowledge and experience in topic area
- 4 = Significant knowledge and experience in topic area
- 5 = Detailed knowledge and experience in topic area
- 6 = Domain area specialists

Geoscientists Without Borders® Reception
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Grand Hyatt, Republic AB
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 Verschuer, and Gerrit Blacquiere, 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 ...... *Optimum seismic acquisition geometry design with the help of artificial intelligence G.* Blacquiere and S. Nakayama, Delft University of Technology (INT. AUD.: 3)

Speaker: Gerrit Blacquiere

11:00 AM ...... *Sparsity promoting reconstruction with compressively acquired land data* Xiang Li, Minjie Guo, Wenhui Li, Zhe Men, and Mugang Zhang, BGP-CNPC (INT. AUD.: 3)

Speaker: Xiang Li

11:25 AM ...... *Mutual coherence in compressive sensing seismic acquisition* Anna Titova, Michael B. Wakin, and Ali Tura, Colorado School of Mines (INT. AUD.: 3)

Speaker: Anna Titova

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Wednesday, 18 September 2019

**ANI 4 Kinematics and Velocities 2**

*Session Chairs: Vincent Durussel and Claudia Montoya Salamanca*

*Location: 221C*

*Synopsis: This session combines papers related to kinematics and velocity anisotropy.*

8:30 AM...... *Source-independent waveform inversion for attenuation estimation in VTI media* Tong Bai and Ilya Tsvankin, Center for Wave Phenomena, Colorado School of Mines (INT. AUD.: 3)

Speaker: Tong Bai

8:55 AM...... *Stacking-velocity tomography for tilted orthorhombic media* Qifan Liu and Ilya Tsvankin, Colorado School of Mines (INT. AUD.: 3)

Speaker: Qifan Liu

9:20 AM...... *A comparison between two fast sweeping algorithms for solving the attenuating VTI eikonal equation* Qi Hao and Umair bin Waheed, KFUPM; and Tariq Alkhalifah, KAUST (INT. AUD.: 3)

Speaker: Qi Hao

9:45 AM...... *Instability of adjoint equations and the use of time reversed forward in acoustic anisotropic full waveform inversion* Huy Le, Stewart A. Levin, and Biondo Biondi, Stanford University (INT. AUD.: 2)

Speaker: Huy Le

10:10 AM ...... *Finite-difference solution of linearized eikonal equation for transversely isotropic media* Yogesh Arora and Ilya Tsvankin, Center for Wave Phenomena, Colorado School of Mines (INT. AUD.: 1)

Speaker: Yogesh Arora

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** Huaizheng Chen and Kristopher Innanen, Department of Geoscience, University of Calgary (INT. AUD.: 3)

Speaker: Hui-Zhen Chen

9:45 AM...... **Constraints guided basis pursuit prestack AVA inversion** Fan Xia, Sinopac Tech Houston; Shuang Zhao and Weinan Ding, Sinopac Southwest Company; and Yequan Chen, Sinopac 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 blockly 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

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**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 Xuefu, Yuan Xiyou, 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, Ziyang 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

9:45 AM...... **A new investigation of the influence of surface charges on the “polarization horns” in induction logs** Cicero Regis, Federal University of Pará — UFPA, and National Institute of Science and Technology of Geophysics — INCT/GP.; Valdelirio da Silva e Silva, Federal University of Pará — UFPA; and Paulo Roberto de Carvalho, Federal Rural University of Amazonia — UFRA (INT. AUD.: 4)

Speaker: Cicero Teixeira Regis

10:10 AM...... **Deep detection of formation boundary using transient electromagnetic logging method** Xiyou Yuan, Shaoqi Deng, Xuefei Hu, Pan Zhang and Haitao Li, School of Geoscience, China University of Petroleum (East China), Qingdao, China (INT. AUD.: 3)

Speaker: Xiyou 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, Zenner 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.; Yaoqiu Li, Center for Gravity, Electrical & Magnetic Studies (CGEM), Colorado School of Mines; Hyongrea 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
**Wednesday, 18 September 2019**

**EMRS 3 Theory, Application and Case Studies**  
*Session Chairs: Jiuping Chen and Daniele Colombo*  
*Location: 225C*

**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 Morelli and Randall L. Mackie, CGG; Fabien Gilbert, TOTAL; and Wolfgang Soyer, CGG (INT. AUD.: 4)  
  Speaker: Federico Morelli

- **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. Mejus, 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  
  Roger V. Miller, Max A. Mejus, and Ahmad Shahir Saleh, Petronas Carigali Centre for Advanced Imaging; and Randall L. Mackie and Federico Morelli, 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

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**Wednesday, 18 September 2019**

**FWI 5 Regularization Techniques 2**  
*Session Chairs: Ettrone Biondi and Zhigang Zhang*  
*Location: 225B*

**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

- **9:20 AM......** On the robustness of I1-regularized ADMM-based wavefield reconstruction inversion against compressed acquisition sampling  
  H. S. Aghamiry, Geoazur-CNRS-IRD-OCA and University of Tehran; A. Gholami, University of Tehran; S. Operto, Geoazur-CNRS-IRD-OCA (INT. AUD.: 4)  
  Speaker: Stephane Operto

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

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

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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. Innanen, Department of Geoscience, University of Calgary (INT. AUD.: 5)
Speaker: Wenyong Pan
9:20 AM...... Multiscale Phase Inversion of Anisotropic Data Shihang 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: Shihang 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. Innanen, 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 Bergouinioux, 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, Feng Xukui, Wang Xuejun, Sun Haishan, Chen Xiangfei, Xie 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 Lyu, 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 Lyu
10:35 AM ... Multi-scale strike-slip fault delineation in deep fractured-vuggy carbonate Qi Lixin and Li Zongjie, Sinopec Northwest Oilfield Branch (INT. AUD.: 3)
Speaker: Lixin Qi
11:00 AM ... Flexures in the Anadarko Basin: Do they indicate faulting or folding? Swetl Patel and Kurt Marfurt, University of Oklahoma (INT. AUD.: 2)
Speaker: Swetl 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’Briain, 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 Balbóné, Palalé Zagré, and Abdoulaye Ouedraogo, 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 Miehè and Grant Harrison, Orano Canada Inc. (INT. AUD.: 3)
Speaker: Xushan Lu

10:00 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, Tecgraf Institute, and Aristofanes Correa Silva, Federal University of Maranhão (INT. AUD.: 3)
Speaker: Luiz Fernando Santos

9:20 AM..... Stratigraphy 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 Alkilafiah, 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.

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; and Nazmul Haque Mondol, University of Oslo and Norwegian Geotechnical Institute (INT. AUD.: 2)
Speaker: Charles Sicking
11:00 AM ... Monitoring of fields using body and surface waves reconstructed from passive seismic ambient noise Florent Brenguier, University of Grenoble Alpes; Aurélien Mordret, Massachusetts Institute of Technology; Richard Lynch and Roméo Courbis, Sisprobe; Xander Campbell, Shell International Exploration and Production; Pierre Boué, University of Gronoble Alpes; Małgorzata Chmiel, Sisprobe; Shujuan Mao, Massachusetts Institute of Technology; Tomoya Takano, Tohoku University; Thomas Lecocq, 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

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 objects in various basins.

8:30 AM...... Geological and geophysical investigation of CO 2 storage site Smeaheia in the northern North Sea Manzor Fawad, University of Oslo; and Nazmul Haque Mondol, University of Oslo and Norwegian Geotechnical Institute (INT. AUD.: 2)
Speaker: Manzor Fawad
8:55 AM...... Identifying complicated lithologic reservoirs using an ‘alternative sweetness’ attribute: A case study of BZ-X oilfield in Bohai Sea Shuangshuan Kong, Xiangyuan Chang, Lingchao Wu, Zhu Min, and Yong Pan, Bohai Petroleum Research Institute, CNPC; Tianjin Company, China (INT. AUD.: 3)
Speaker: Shuangshuan 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, Hengdu Praseyo, Luis Pernia Soto, Laurent Schulbaun, 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 ... Prospectiveity of mid Cretaceous using broadband full azimuth seismic through geostatistical inversion technique: A case study from Kuwait Mohammad Hameed, Muneera Al Awadhi, and Mohammed Hafez Abdul Razak, Kuwait Oil Company (INT. AUD.: 3)
Speaker: Hameed Mohammed
Wednesday, 18 September 2019

**ORAL SESSIONS**

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**Wednesday, 18 September 2019**

**RP 4 Induced Fracturing**

*Session Chairs: Venkatesh Anantharamu and Paritosh Bhatnagar*

*Location: 305*

*Synopsis: Session covers geophysical properties of induced fracture networks.*

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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, Tongyuan Liu, and Rongyan Huang, China University of Petroleum, Beijing (INT. AUD.: 3)

Speaker: Long Chang

10:10 AM...... **Numerical simulation of coal cleat effects on ultrasonic wave induced mechanical vibration enhancing permeability**

Qian Zhao and Huilin 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 hydrodraulically 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

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**Wednesday, 18 September 2019**

**SM 4 Modeling Methods**

*Session Chairs: Timothy Brice and Richard Gibson*

*Location: 304A*

*Synopsis: Traveltime, ray tracing, and source wavefield modeling methods, improvements.*

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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...... **Traveltime 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; Bjarn Ursin, Norwegian University of Science and Technology; Teemu Saksala, Rice University; Joonas Ilmavirta, University of Jyväskyläe; 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, TEECSolutions GmbH; Sandra Arevalo, TEECSolutions 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, Henyuk Modzelewski, The University of British Columbia; Charles Jones and James Selvage, Ossoy 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 Alexandru Merciu and Gjertrud Skar, Equinor (INT. AUD.: 2)
Speaker: Aimé Fournier
### ORAL SESSIONS

#### 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.

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker</th>
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<tbody>
<tr>
<td>8:30 AM</td>
<td>3D attenuation of aliased ground roll on randomly undersampled data</td>
<td>Stephen K. Chiu, In-Depth Geophysical (INT. AUD.: 3)</td>
</tr>
<tr>
<td>8:55 AM</td>
<td>Cleaning up first arrivals in the cross-spread domain</td>
<td>Stewart Trickett, Juniper Bay Software (INT. AUD.: 3)</td>
</tr>
<tr>
<td>9:20 AM</td>
<td>Vector-valued seismic data denoising via widely-linear autoregressive models</td>
<td>Breno Bahia and Mauricio D. Sacchi, University of Alberta (INT. AUD.: 3)</td>
</tr>
<tr>
<td>9:45 AM</td>
<td>High-dimensional center filtering method based on block matching</td>
<td>Liqi Zhang and Huazhong Wang, Tongji University (INT. AUD.: 5)</td>
</tr>
<tr>
<td>10:10 AM</td>
<td>Multi-domain surface multiple leakage extraction using local primary-and-multiple orthogonalization</td>
<td>Dong Zhang, Eric Verschuur, and Shan Qu, Delft University of Technology, and Yangkang Chen, Zhejiang University (INT. AUD.: 3)</td>
</tr>
<tr>
<td>10:35 AM</td>
<td>Interbed demultiple and converted wave attenuation in shallow water Guyana</td>
<td>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)</td>
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<tr>
<td>11:00 AM</td>
<td>Least-squares reverse time migration with prism waves</td>
<td>Maksym Kryvohuz, Shell International Exploration and Production Inc.; and Henning Kuehl, Shell Global Solutions Canada (INT. AUD.: 2)</td>
</tr>
<tr>
<td>11:25 AM</td>
<td>Seismic image interpolation from irregular locations to a 3D grid using dynamic time warping</td>
<td>Ben Gremillion and Sergey Fomel, The University of Texas at Austin (INT. AUD.: 3)</td>
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#### 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.

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<tr>
<th>Time</th>
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<th>Speaker</th>
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<tbody>
<tr>
<td>8:30 AM</td>
<td>Understanding cable coupling artifacts in wireline-deployed DAS VSP data</td>
<td>Mark E. Willis, Xiang Wu, William Palacios, and Andreas Ellmann, Halliburton (INT. AUD.: 3)</td>
</tr>
<tr>
<td>8:55 AM</td>
<td>Salt/sediment proximity to delineate salt boundaries with P and PS waves using seismic while drilling in the Gulf of Mexico</td>
<td>B. Jensen and J. Bayer, Shell E &amp; P; Y. Li, T. Chen, and K. Matson, Shell International E &amp; P (INT. AUD.: 2)</td>
</tr>
<tr>
<td>9:20 AM</td>
<td>Seismic while drilling using a large-aperture ocean bottom array</td>
<td>Flavio Poletto, Cinzia Bellezza, and Piero Corubolo, OGS; Alex Goertz, Endre Vange Bergfjord, and John Even Lindgård, OCTIO (INT. AUD.: 3)</td>
</tr>
<tr>
<td>9:45 AM</td>
<td>Joint imaging with primaries and multiples of VSP data by GRT migration</td>
<td>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)</td>
</tr>
<tr>
<td>10:10 AM</td>
<td>Transmitted PS waves to discriminate fracture anisotropy from structural effects on azimuthal VSP (AzVSP) signatures</td>
<td>Ali Sayed, Schlumberger; Robert Stewart, University of Houston; and Dhananjay Kumar, BP (INT. AUD.: 2)</td>
</tr>
<tr>
<td>10:35 AM</td>
<td>Estimation of Q in the presence of full waveform scattering effects in VSP data</td>
<td>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)</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>Simultaneous accelerometer and optical fibre multi-azimuth walk-away VSP experiment: Newell County, Alberta, Canada</td>
<td>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)</td>
</tr>
<tr>
<td>11:25 AM</td>
<td>Integrational anisotropic earth-model building using vertical and horizontal-vibrator VSP data</td>
<td>Shujaat Ali, Schlumberger; Jimming Zhu, Chesapeake; and Ali Sayed, Schlumberger (INT. AUD.: 3)</td>
</tr>
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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-wavelength 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 Twynam, 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 Delliger, 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

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. Ratnett, S. Baldock, and H. Masoomzadeh, TGS (INT. AUD.: 3)
Speaker: Neil Ratnett
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. Al-Marzoog, 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, Asbjørn Lund Johansen, Gabriela Martinez, and Erik Wielemake,
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**
Nori 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 waveform 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 Zhu, 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; Emmanuel 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, Jing Li, and Hongbo Ding, CNOC; L. Zhang, Jinjin 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 Institute, SINOPEC; Bo Zhang and Yihuai Lou, The University of Alabama; and Xiwu Liu, Petroleum Exploration and Production Research Institute, 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 Jeij

2:15 PM...... Data processing of a local seismological network for West Texas seismicity characterization Dmitri Merzlikin, Alexandros Savvidais, 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 Georgios Tsoflia, 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 Dawid Szafranski and Benchun Duan, Texas A&M University (INT. AUD.: 3)
Speaker: Dawid Szafranski
### Wednesday, 18 September 2019
#### MLD A 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 Ximinning 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 Ximinning Wu, The University of Texas-Austin (INT. AUD.: 1)  
Speaker: Qie Zhang

3:05 PM...... **Reducing training dataset bias for automatic fault detection** Sébastien Guillou, Frédéric Joncour, Pierre Goutorbe, and Laurent Castanié, Total E&P Research and Technology USA Inc, Sunnynave, CA (USA) (INT. AUD.: 3)  
Speaker: Sébastien Guillou

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, Huseyin 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 Ximinning Wu, The University of Texas at Austin (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, Hyangin Ye, and Lim 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
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
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

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 Akhalifah, 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; Umar 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 Pellegrino, 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
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, Xingyan 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 Volianskaia, 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 Guanrui 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, Chunning 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 Mengxiu Wang, Jingyi Chen, Zhencong Zhao, and Yifei Bao, Seismic Anisotropy Group, Department of Geosciences, The University of Tulsa (INT. AUD.: 4)
Speaker: Mengxiu 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: Duan Peiran
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
Speaker: Hassan Masoomzadeh
3:05 PM...... The continuous wavefields method: Using electro-mechanical sources Stian Hegna, Tilman Klüver, Orji Okwudili, 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, Hamming 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, Shaoying Liu, and Hamming 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 QFZYGEO 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
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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 Yaojun 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 Yan Yuefeng 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 Zhalun Liu and Gerard Schuster, King Abdullah University of Science and Technology (KAUST); and Jing Li, Jilin University (INT. AUD.: 3)
Speaker: Zhalun 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, Wenjun 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 Kraulis 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>
<th>Organizers</th>
<th>Sponsoring Committee</th>
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<tr>
<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 Verlic, 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 Esmersoy, Dan Ebrom, Ali Mese</td>
<td>Research Committee</td>
<td>221C</td>
<td>8:30 AM–5:00 PM</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, Weichang Li, Anoop Mullur</td>
<td>Research Committee</td>
<td>301B</td>
<td>8:30 AM–5:00 PM</td>
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<td>W-5: Value of High-frequency FWI Models</td>
<td>Ping Wang, Rongrong Lu, Uwe Albertin, Laurent Demanet, Adriano Gomes, Antonie Guittion</td>
<td>Research Committee</td>
<td>303B</td>
<td>8:30 AM–5:00 PM</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 Houleveigne, 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>
<td>221B</td>
<td>8:30 AM–5:00 PM</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>
<td>225C</td>
<td>8:30 AM–12:00 PM</td>
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W-9: New Technologies in Marine Acquisition
Mariana Gherasim
Andrew Feltham
Josef Paffenholz
Rongxin Huang
Ray Abma
Andrew Brenders
Research Committee 225B 8:30 AM–12:00 PM

W-10: Misac Nabighian Memorial Workshop
Ed Biegert
Yaoguo Li
Jean M. Legault
Aline Tavares de Melo
Ken Witherly
Cara Schiek-Stewart
Manik Talwani
Mining Committee and Gravity and Magnetics Committee 304B 8:30 AM–12:00 PM

W-11: Long Term Monitoring of CO2 Geosequestration: Continuous Surveillance and Quantitative Interpretation
Guillaume Bergery
Don Lawton
Roman Pevzner
Stanislav Glubokovskikh
Martin Schoenball
Michel Verliac
Research Committee 305 1:30 PM–5:00 PM

W-12: Interpretation and De-risking to Support Decision making in Development and Production
Adam Bucki
Jay Byers
Andrew Royle
Mariana Gherasim
Development and Production Committee 225B 1:30 PM–5:00 PM

W-13: Geophysical Monitoring of Unconventional Reservoirs
Daniel Ott
Development and Production Committee 225C 1:30 PM–5:00 PM

FRIDAY, 20 SEPTEMBER

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| W-14: DAS Part 2: What is next for DAS? Operator needs versus technology suppliers vision… | Michel Verliac
Ge Zhan
Mahmoud Farhadiroushan
Albena Mateeva
Michael John Williams | Research Committee | 302B | 8:30 AM–12:00 PM |
| W-15: Advances with Land Seismic for Characterizing Reservoirs — Part 2 | Christof Stork
Mike Perz
Bruce Hootman
Rodney Johnston | Research Committee | 221D | 8:30 AM–12:00 PM |
| W-16: Artificial Intelligence Frontiers in Geosciences | Vikram Jayaram
Atish Roy | Research Committee | 301B | 8:30 AM–12:00 PM |
| W-17: Seismic Attributes in the Age of Machine Learning | Long Jin
Jie Zhang
Osvaldo Davogussto
Cataldo | Research Committee | 303B | 8:30 AM–12:00 PM |
| W-18: Least Squares Migration the Way Forward | Ping Wang
Faqi Liu
Gerald Schuster
Antoine Guitton
Hui Huang
Carlos Calderon | Research Committee | 221A | 8:30 AM–12:00 PM |
| W-19* | | | | |
| W-20: Rock Physics Implications of CO2 Injection in the Subsurface | Hendratta Ali Nazmul Haque Mondol
Manika Prasad
Himadri Srivastava
| SEG Women’s Network Committee | 221C | 8:30 AM–12:00 PM |
| W-21: Ambient Noise Imaging and Monitoring for High-resolution Spatial and Temporal Near-surface Characterization and Exploration Seismology | Niels Grobbe
Sjoerd de Ridder
| SEG Near-Surface Geophysics Technical Section | 225B | 8:30 AM–12:00 PM |

*Workshop canceled