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SPE

The Denver SPE Section is proud to offer several key events in February.

Back after wild success is the Education Track course offering. Deadline to register for this event is **February 10th**.

Also to note, the deadline to submit SPE Award Nominations is **February 15th!** Don't miss out on an opportunity to nominate a colleague and recognize excellence in their field.

Scroll down to catch up on all the updates and happenings for this month as well as get more information on the events noted above.

February 6, 2017

GENERAL MEETING

Crude Oil From a Trader's Perspective - "Follow the Money" Tech Analysis

Jim Borowicz

📍 Denver Athletic Club
📅 February 15, 2017, 11:30 AM - 1:00 PM

Tickets:

Members	\$25
Non-Members	\$35
Walk-Ins	\$45

[Register Now](#)

Registration closes Monday, February 13, 2017 at 5:00 PM

Biography: Jim Borowicz is a seasoned energy professional with over 30 years of diverse corporate experience in oil and gas operations, natural gas supply acquisition, natural gas storage management and is considered an industry expert with managing commodity risk for natural gas, crude oil and diesel fuel. Jim has provided advisement services to producers, railroads, natural gas utilities, power generators as well as large industrial consumers throughout the United States and is a regular lecturer/educator to trade groups and executive committees. Jim has a M.B.A. from the University of Colorado, Denver and a Finance degree from the University of North Dakota.



FEBRUARY EDUCATION TRACK COURSE

Microseismic Monitoring of Hydraulic Fracture Stimulations – What Engineers Need to Know!

Mike Preiksaitis, Geophysical Specialist, ESG Solutions

📅 February 14, 2017 | 2:00 PM - 5:00 PM
📍 Noble Energy Offices | 1625 Broadway #2200, Denver, CO 80202

[Register Now](#)

Pricing:

Members/Students: \$20
Non-Members: \$40

Register By: February 10, 2017

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**Thanks to this Month's
Newsletter Sponsor:**



15th Annual Gas Well Deliquification Workshop

February 20 - 22, 2017

Sponsored by the Artificial Lift R&D Council and Southwestern Petroleum Short Course

Information you need to optimize Gas Well Deliquification!

- Continuing Education Courses
- Technical Sessions
- Panel Discussions
- Breakout Sessions
- Exhibitors
- Networking

Detailed information can be found on [our website](#).

Contact Information:

Cleon

Dunham: cleon@oilfieldautomation.com

Ronda Brewer: Ronda.brewer@ttu.edu

Format: Slides will be sent out on **February 10th**. Attendees will be required to bring their slides to the class either printed, on a computer, iPad, etc. *CEU Credits will NOT be available for this course.

Abstract: Over the past decade, microseismic monitoring has become a widely used approach to gain an understanding of in-situ reservoir behavior during hydraulic fracture stimulations. From early monitoring performed in the Barnett Shale to current programs in unconventional formations around the world, microseismic monitoring has served as a valuable geophysical tool to help operators optimize completions methods, improve field development and maximize recovery. Locating microseismic events associated with hydraulic fracturing provides feedback on fracture geometry, optimal well orientation and spacing, effective stimulated volume and fault interaction, while the integration of advanced microseismic methods with engineering and geomechanics provides a new understanding of complex fracture network development. The seminar will provide an overview of microseismic theory and practice, from program design and acquisition through to data processing and interpretation. Case studies will demonstrate how microseismic monitoring can improve production through improved understanding of reservoir behavior.

The following topics will be covered:

- **Microseismic Fundamentals:** A brief review of seismic theory and discussion on what microseismics can and can't tell you.
- **Microseismic Monitoring Equipment:** Tool types and deployment options, including downhole, near-surface/surface, and hybrid systems will be discussed, along with the importance of array designs and the pros and cons of various configurations.
- **Case Studies:** Discussion of the practical applications of microseismic interpretation for hydraulic fracturing including answering questions such as:
 - Does more dots = better production?
 - What can microseismics tell you about your completions techniques?
 - The role of geology in fracturing
 - Integrating microseismic results with other data
 - Seismic Moment Tensor Inversion – What can it do for me? How is it different from fault mechanism analysis?
- The next step –Where is my production coming from?

Bio: Mike Preiksaitis is a Geophysical Specialist with ESG's global energy services division, where he is a senior resource to processing and reporting teams for hydraulic fracture monitoring projects. Mike joined ESG in 2011 as a geophysicist and has played an integral role in the growth of ESG's FRACMAP® services, with tremendous experience in microseismic array design, advanced processing and interpretation. Mike is a registered professional Geophysicist (P.Geo) and a member of the SEG and CSEG. He earned his B.Sc. in Geophysics from the University of Alberta in Canada. Prior to joining ESG, Mike worked as a geophysical processor at CGG Veritas where he processed conventional 2D/3D seismic data.

SPE AWARD NOMINATIONS

FINAL CALL FOR SPE AWARD NOMINATIONS!
The deadline to submit a nomination is February 15, 2017

Applaud excellence in the E&P industry by nominating a colleague for an annual award given by the Society of Petroleum Engineers.

SPE Awards recognize expertise and contributions to the upstream oil and gas industry.

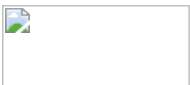
Awards will be presented at the regional and international levels for:

- Technical contributions
- Professional excellence
- Career achievement
- Service to colleagues
- Industry leadership
- Public service

On-line regional award nomination process only takes 15-20 minutes! PLEASE think of someone who deserves recognition for their outstanding work in the E&P industry and visit www.spe.org/awards today!

You will also see international awards listed at this link. Please consider nominating a colleague for an international award as well.

CONTINUING EDUCATION



DFIT – The Unconventional Well Test: Theory, Design and Interpretation



Dr. David P. Craig, P.E., Reservoir Development Consulting

Registration Deadline: **Friday, March 3, 2017**

Course Dates: Tuesday-Wednesday, March 21-22, 2017

Course Info: [DFIT - The Unconventional Well Test](#)

This course will review the theory of fracture-injection/falloff testing, the design of DFITs, and interpretation of DFIT data using both straight-line and type curve methods, illustrated with North American field examples, including horizontal and vertical well DFITs in unconventional reservoirs. Additionally, field examples will be included to show how DFIT interpretations can be used in production data analysis of horizontal wells.

Introduction to Petroleum Engineering

Dr. Richard L. Christiansen, Professor, The University of Utah

Registration Deadline: Friday, April 7, 2017

Course Dates: Wednesday-Thursday, April 26-27, 2017

Course Info: [Introduction to Petroleum Engineering](#)

This course builds on content of a new text, Introduction to Petroleum Engineering, co-authored by Dr. Christiansen and Dr. John R. Fanchi and published by Wiley in 2016. The intent of the text and the course is to introduce engineers and non-engineers to tools and methods used by petroleum engineers to produce oil and gas resources. Going beyond verbal descriptions, participants will work with important concepts and relationships at an introductory level. Participants will receive copies of the text.

You can find a full list of 2017 Continuing Education Courses here: [2017 Denver Section SPE Training Courses](#)

For questions and further details, contact Julianna Spieki at denversection@spemail.org

DRILLING STUDY GROUP

Improved Wellbore Placement Accuracy to Optimize Field Development

Dr. Stefan Maus, Magnetic Variation Services, LLC

February 21, 2017 | 11:30 AM - 1:00 PM

Schlumberger Offices | Suite 700 | 1675 Broadway, Denver, CO 80202



Abstract: Wellbores steered by standard Measurement While Drilling have large uncertainties. Their Ellipses of Uncertainty (EOUs) reach hundreds of feet in diameter at the end of the well. In congested oil fields and closely spaced new developments, low separation factors between adjacent wellbores create significant collision risk. Furthermore, inaccurate wellbore placement leaves resources stranded, reducing overall recovery from the field.

Uncertainties in wellbore placement can be reduced by over 50% using advanced survey management techniques. This effectively doubles the separation factors between adjacent wellbores. Since errors in the magnetic declination directly translate into azimuth errors, the first step is to apply In-Field Referencing (IFR) using local airborne magnetic overflights. The next step is to carry out a Multi-Station Analysis (MSA) of the accelerometer and magnetometer measurements in order to identify and correct for instrument bias and scale errors. Finally, the accuracy of vertical depth can be improved significantly by correcting for BHA Sag, slide/rotate sequences and micro doglegs. Applied operationally in real time, these techniques reduce collision risk, enable tighter wellbore spacing and provide more accurate TVD for geosteering and integrating LWD data into geomodels.

Bio: Dr. Stefan Maus is a Senior Scientist at the University of Colorado, Boulder, where he and his co-workers analyze satellite, airborne, marine and ground magnetic data to model contributions to the geomagnetic field originating in the Earth's core, mantle, crust, oceans and space. His work has supported the Department of Defense (DoD), National Oceanic and Atmospheric Administration (NOAA), Coast Guard, Federal Aviation Association (FAA), NASA and other agencies to meet their needs for accurate geomagnetic reference information for navigation and pointing. Dr. Maus led the development and release of the World Magnetic Model WMM2005 and WMM2010, led the production and release of the International Geomagnetic Reference Field (IGRF2005 and IGRF2010), and developed the Enhanced Magnetic Model (EMM2010), the High Definition Geomagnetic Model (HDGM) and the Earth Magnetic Anomaly Grid (EMAG2). He is the Project Leader of International Standard 16695 - Geomagnetic Reference Models, and he serves on the panel for the 2017-2027 Decadal Survey for Earth Science and Applications from Space of the National Academy of Sciences, Engineering and Medicine.

Dr. Maus holds an advisory role in the *Swarm* triple-satellite constellation mission, which was launched successfully in November 2013. In his previous position at Helmholtz Center Potsdam, he worked as a CHAMP satellite mission scientist specializing in crustal magnetic anomalies. Dr. Maus has published more than 100 peer-reviewed scientific and technical papers and regularly presents at SPE, IADC, SEG, AADE, ISCWSA, URTEC, and other industry and scientific conferences and workshops.

Recognizing the need of the directional drilling industry for more accurate downhole surveying, Dr. Maus founded *Magnetic Variation Services (MagVAR)* in 2010. Responding to oil field customer demand for 24 hour services and support, a Real-Time Operations Center *Surcon* was added in 2014, co-managed by business partner Shawn DeVerse.

MagVAR and *Surcon* offer a unique suite of products and services, which improve wellbore positioning, reduce vertical depth errors, shrink ellipses of uncertainty, and increase separation factors between adjacent wells for anti-collision. Providing quality control and confidence in wellbore placement, *MagVAR* and *Surcon* have expanded rapidly, now serving over 60 rigs for more than 50 oil field operators and service companies worldwide.

ENGINEERING SOLUTIONS FOR SUSTAINABILITY



Last chance to register for the third iteration of the multidisciplinary *Engineering Solutions for Sustainability: Materials and Resources* with the theme of “**Toward a Circular Economy**” in Denver February 18-19. Planning partners include AIME, SME, SPE, TMS, AIST, ASCE, and AIChE. Promotional partners include AAES, AEG, CGS, IAEG, and GSA.

Hear from and interact with over 40 experts from industry, academia, government, and NGOs to help you implement best practices at your organization. Presenter organizations include Anadarko, Chevron Phillips, Deloitte, Umicore, Worcester Polytechnic Institute, Colorado School of Mines, Auburn, Georgia Tech, Arizona State, Concordia, Monash, US Business Council for Sustainable Development, Idaho National Lab, EPA, Export Import Bank of the US, and Water for People. Registration includes breakfasts, lunches, and a poster session with networking reception, as well as eProceedings which will include collaborative dialogue captured at this specialized forum. **For more and to register, visit www.essmandr3.org.**

YOUNG PROFESSIONAL UPDATES

February Lunch & Learn

Two Vital Secrets for Building Better Type Wells

Randy Freeborn, Chief Research Engineer, Energy Navigator

February 8, 2017 | 11:30 AM - 1:00 PM

Liberty Oilfield Services | 950 17th Street Suite 2000, Denver, CO 80202

Abstract: Each year, companies use averaged well production (type wells) to support billion dollar expenditures to buy and develop oil and gas resources. These type wells often have unrepresentative rate-time profiles and recoveries over-stated by as much as 50%. These intolerable errors result from common, but incorrect, assumptions in constructing type well production profiles, and the selection and weighting of analog wells.

Literature related to constructing type wells is sparse and incomplete. This lecture will fill that gap and lead participants to informed decisions for best practices in type well construction. Hind casting examples show that only small errors in recovery result when the type well construction combines historical and predicted production rates. This improvement results from using educated estimates (not intrinsic values) for months with no data to average, and from individual well forecast errors that offset one another. A Monte Carlo method incorporates risk and leads to better well selection and weighting factors, achieving more representative rate-time profiles. The recommended methodology incorporates aggregation and choosing different uncertain parameters. Parameter choice is important because it makes little sense to risk recovery (e.g., P90 for proved reserves) when the application demands a different parameter such as present value.

Type well construction methods are common, but they have errors that are difficult to detect. Evaluators are likely using type wells for financial analysis, facility design, cash flow prediction, reserve estimation and debt financing without knowledge of the inaccuracies and options to improve accuracy.

Bio: Randy Freeborn is a subject matter expert in the field of empirical forecasting, type wells and related technology. Currently, he is Chief Research Engineer at Energy Navigator where he is responsible for identifying and inventing engineering technology for inclusion in the company's reserve management software. He has been a professional engineer for 44 years and is a member of SPEE and SPE. Freeborn has prepared numerous technical papers for presentation at conferences, workshops and industry meetings. He has given guest lectures at the University of Houston and Texas A&M, and has been called as an expert witness.

Randy is the Chief Research Engineer at Energy Navigator. He maintains an understanding of current technology by attending all relevant conferences, workshops and forums, undertaking independent research, and collaborating with other subject matter experts. When he identifies technology that is appropriate for inclusion in Energy Navigator's software, he then builds prototypes for the company's developers.

Please RSVP to **Anne Becker** (anne.becker@gepres.com) to reserve your spot – lunch (pizza) will be provided. See you there!

February Happy Hour

February 8, 2017 | 4:30 PM - 6:30 PM

The Rio | 1525 Blake Street, Denver, CO 80202

Reconnect with friends, colleagues, and networking contacts for happy hour. The first round is on us!

UPCOMING SPECIAL EVENTS:

SPE – YP 3rd ANNUAL SPRING FLING SKI TRIP

February 10 – 12, 2017, Copper Mountain Resort – space is limited, fun is not. A great opportunity with network while hitting the slopes and enjoying après ski. 4 out of 5 engineers agree – a proven way to build relationships, increase brand awareness, and learn ski skills from your customers (informal survey, 5th engineer was in the trees...).

Lodging includes 2 nights in Copper Mountain Resort – slopeside (Friday, 2/10, and Saturday, 2/11)

Lift Tickets (2 ski / board days) valid February 10th – February 12th

Pricing:

Lodging + Lift Tickets (\$250 / person)

Lodging Only (\$175 / person)

Sponsorships are still available! Contact Mark Hinaman (mark.hinaman+SPE@gmail.com) or Tom Rolleczek (trolleczek@varelintl.com) for details and sponsorship levels.

Register here: <http://denver.spe.org/> (ski trip is listed under February 10th on this main page). Once registered, you will receive a follow-up email from the SPE – YP Board. Questions? Contact Mark Hinaman (mark.hinaman+SPE@gmail.com) or Tom Rolleczek (trolleczek@varelintl.com).

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