1st Edition 2020

geoLOGIC NEWS

A publication of Subsurface Consultants & Associates, LLC

Training is Evolving

A message from our President

Einstein observed that "*education is what remains after one has forgotten what one has learned in school*," and studies suggest that we typically retain far less than half of what is learned through the traditional classroom style of learning. Fortunately, technical training pedagogy has evolved significantly in recent years, and application of the full spectrum of learning tools, strategies, and delivery methods available today makes for a far more effective training program.

Millennials have grown up with and are accustomed to this new learning environment that is customizable, modularized, available on demand, and technology infused. It is frequently delivered in more visually compelling formats, and often involves collaboration with peers to tackle work-like simulations rather than individual, test-like exercises. This is not to say that the classroom is obsolete, but face-to-face time can be better spent on real life case studies with instructors mentoring the application of relevant knowledge obtained via eLearning. There is less need to memorize vast amounts of knowledge presented through a five-day classroom "fire-hose" when a quick search can provide just-in-time instruction via a focused eLearning article or YouTube-style video.

SCA is evolving to meet the training needs of our industry while continuing to emphasize the fundamentals that are essential to becoming a skilled geoscientist or engineer. We have recently launched our Live Online Courses, detailed on pages 2 and 3, which include real-time exercises and discussions between the instructor and attendees. These virtual classes are scheduled in half-day sessions and can also be offered in-house for employers preferring a tailored schedule.

Hal Miller
President

inside this issue:

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Stay connected with SCA

Featured Live Online Training Courses

Reservoir Scale Geomechanics

Instructor: Amy Fox, PhD
Date: July 6-8, 2020
Length: 3 Half-Day Sessions (12.0 Total Hours)

Petroleum geomechanics is a unique, multi-disciplinary field that combines elements of rock mechanics, geology, geophysics and engineering. This course is focused on conveying an understanding of why an accurate geo-mechanical model is necessary and how it can inform decisions made by various stakeholders within an oil and gas organization. A wide range of data types and analyses are discussed and prioritized.

Refrac Candidate Selection, Execution and Performance Evaluation for Conventional and Unconventional Reservoirs

Instructor: Robert 'Bob' Barba
Date: July 13-15, 2020
Length: 3 Half-Day Sessions (12.0 Total Hours)

Participants will learn a methodology that first accurately characterizes reservoir properties to evaluate the effectiveness of the original hydraulic fracture treatment with production data. This enables a determination of the cause of poor production performance as a function of a poorly designed or executed completion or poor quality reservoir rock. If the remaining volumetric reserves are economic, techniques are presented to effectively access these reserves with refracturing treatment(s).

Practical Interpretation of Open Hole Logs

Instructor: Robert 'Bob' Barba
Date: July 27-29 & August 3-5, 2020
Length: 6 Half-Day Sessions (24.0 Total Hours)

Attendees will learn basic interpretation techniques needed to interpret open hole well logs. Both quick-look qualitative interpretations and more rigorous quantitative interpretations are covered. The course is generic in technical scope, so no specific software is used. Both the theory and practice of practical, applied interpretation are covered as well as practical advice, applied exercises, discussions and the study of actual logs

Introduction to Subsurface Machine Learning

Instructor: Michael J. Pyrcz, PhD
Date: July 21-24, 2020
Length: 4 Half-Day Sessions (16.0 Total Hours)

This workshop focuses on the advanced application of data analytics, geostatistics, and machine learning to energy industry data. The course is a critical step in laying the foundation necessary for thinking statistically and identifying the key signals from the noise that is data. Participants will learn to effectively prepare data and ensure drawn conclusions are reliable, make predictions from data using certain techniques, and understand the assumptions and limits of data.

Introduction to Energy Data Science in Python

Instructor: John T. Foster, PhD
Date: August 10-14, 2020
Length: 5 Half-Day Sessions (20.0 Total Hours)

This workshop focuses on the application of programming, visualizations, and data science solutions to energy industry data. Python is a key tool in data analytics and data science. Consequently, this workshop is geared towards teaching students how to leverage the Python data science ecosystem (Numpy, Pandas, Matplotlib, and Jupyter, etc) and its application to energy industry data. Students will have practical experience designing tools that will optimize workflows.

Drilling Fluids

Instructor: Lee A. Richards, PhD
Date: August 17, 19, & 21, 2020
Length: 3 Half-Day Sessions (12.0 Total Hours)

This course is designed to improve understanding of drilling fluids and the theory behind fluid treatment and maintenance, and to take the mystery out of drilling fluid operations. Participants will learn both oil-based and water-based drilling fluid maintenance and application, how fluids interact with drilled formations, governing principles behind mud report numbers, and how to recognize proper and improper treatment strategies.

Basics of the Petroleum Industry

Instructor: Susan Howes, PE, PHR
Date: August 26-28, 2020
Length: 3 Three-Hour Sessions (9.0 Total Hours)

A MUST course for new hires in the industry as well as non-technical personnel and support staff. This course covers a wide variety of topics such as the generation and trapping of hydrocarbons, the nature of geophysics, and basic petroleum engineering practices. The key skills, terminology, and tools involved in each discipline are highlighted, and all concepts are thoroughly illustrated with current examples.

Sequence Stratigraphy Applied to O&G Exploration

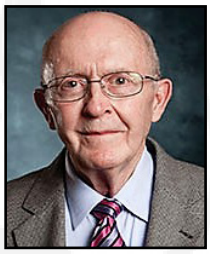
Instructor: Oscar Lopez-Gamundi, PhD
Date: September 8-10, 2020
Length: 3 Half-Day Sessions (12.0 Total Hours)

This course covers the concepts and practical applications of sequence stratigraphy for oil and gas exploration, appraisal and production. The ultimate objective of the course is to provide the practitioner with tools and methodologies of sequence stratigraphy to effectively predict the presence and quality of reservoir, source rock and seal and define the key architectural elements of stratigraphic traps.

Petroleum Fluids and Source Rock in E&P Projects

Instructor: Alexei Milkov, PhD
Date: September 21-23 & 28-30, 2020
Length: 6 Half-Day Sessions (24.0 Total Hours)

Course participants will learn how to interpret fluids and source rock data to add value to projects from exploration to environmental remediation in both conventional and unconventional petroleum systems world-wide. The fundamentals of petroleum composition and properties, analytical techniques for evaluating the potential of source rocks, characterization and risking of source rocks, and assessment of reservoir compartmentalization during appraisal and development will be covered.



PRMS and SEC Reserves and Resources Regulations

Instructor: W. John Lee, PhD
Date: October 5-8, 2020
Length: 4 Half-Day Sessions (16.0 Total Hours)

This course summarizes the PRMS resources classification system and the SEC regulatory system for reporting reserves. The PRMS guidelines, the basis for many of the modernized SEC reserves guidelines, are also covered. These guidelines provide a systematic procedure to inventory resources, which is especially important for resources other than reserves (ROTR). SEC reserves definitions, reporting requirements, and guidance are included.

Production Forecasting For Low Permeability Reservoirs

Instructor: W. John Lee, PhD
Date: October 26-29, 2020
Length: 4 Half-Day Sessions (16.0 Total Hours)

This course summarizes decline curve analysis (DCA), including Arps' decline models, linear flow models, and other recent decline analysis approaches. We provide background information on basic fluid flow theory, which enhances understanding of strengths and limitations of both traditional and recent decline analysis methods. Numerous short class exercises illustrating principles will be included.

Depositional Evolution of the Gulf of Mexico Sedimentary Basin

Instructor: John W. Snedden, PhD
Date: November 16-20 & November 30 - December 4, 2020
Length: 10 Two-Hour Sessions (20.0 Total Hours)

Course participants will learn how to interpret fluids and source rock data to add value to projects from exploration to environmental remediation in both conventional and unconventional petroleum systems world-wide. The fundamentals of petroleum composition and properties, analytical techniques for evaluating the potential of source rocks, characterization and risking of source rocks, and assessment of reservoir compartmentalization during appraisal and development will be covered.

SCA WEBINARS

SCA offers Free Live and On-Demand Webinars of various oil and gas topics presented by our industry-recognized experts who are actively engaged in their areas of expertise and as instructors for SCA. Content is selected as a preview of their respective SCA courses.

Risk Management and Response Planning to Minimize Impact to Projects (Including Cyber Security)

Jill B. Almaguer, PE, MBA, PMP

Using Logs and Production Data to Predict Organic Shale EURs

Refrac Candidate Selection

Organic Shale Refracs

Robert 'Bob' Barba

Artificial Lift Challenges in Unconventional Reservoirs

Rajan N. Chokshi, PhD

Modern Challenges for Pressure and Rate Transient Analysis

Christine Ehlig-Economides, PhD

Energy Data Science in Python: Introduction to Pandas

John T. Foster, PhD

Can Geomechanics Improve Your Drilling and Completions? Spoiler Alert - Yes!

Amy Fox, PhD

Mapping Faulted Surfaces with Petrel©

Mapping Horizontal Wells with Petrel©

Laurie Green, MSc, PG

Mudrock Sedimentology in Unconventional Shale Reservoirs: Suspension Setting, Gravity Flow, or Current Transport

Ursula Hammes, PhD

Gain Insights Into Long-Term Performance Using Various DCA Tools

Shah Kabir

Determination of In-Situ Reservoir Absolute Permeability Under Multiphase Flow Conditions Using Transient Well Testing

Medhat "Med" Kamal, PhD

Upscaling for Efficient Flow Simulation in Petrel©

Mohan Kelkar, PhD

The SEC's "Reliable Technology" Rule: Where Are We Today?

Identifying Flow Regimes: A Big Assist for Production Forecasting

New PRMS Regulations

W. John Lee, PhD

Expression of Sequence Stratigraphy in Outcrop, The Book Cliffs, Utah

William Little, PhD

Kinetic Sequence Stratigraphy: Its Application to Exploration

Evolution of Isolated Carbonate Buildups

Oscar Lopez-Gamundi, PhD

The Importance of Natural-Fracture Type in Controlling Reservoir Permeability

John C. Lorenz, PhD & Scott P. Cooper, MS

Visual Cuttings & Core Description to Characterize Reservoir & Non-Reservoir Rock

Robert Merrill, PhD

What is Your Fracture Conductivity Anyways? Damage Mechanisms and Other Concerns

Jennifer L. Miskimins, PhD

Subsurface Machine Learning: Introduction to Spatial Data Analytics with Python

Michael Pyrcz, PhD

Why is My Mud Bill So High? How to Minimize Costs Associated with a Healthy OBM System

Lee Richards, PhD

Well Stimulation: What, Why & How

Leo Roodhart, PhD & Gerrit Nitters

Drillstring Design and Drilling Optimization with Mud Motor Operation

Robello Samuel, PhD

Avoiding Dry Holes

Would You Recommend Drilling a Dry Hole?

Habits of Effective Geoscientists

Robert 'Bob' Shoup

Modern Well Flow Evaluation/Production Logging

James J. Smolen, PhD

Geology and Exploration Trends in the Gulf of Mexico 'Superbasin' US and Mexico

John W. Snedden, PhD

Exploring for Mudrock Reservoirs: What We Think We Know

Unconventional Petroleum Systems: From the Deep Basin to Tar Sands

Stephen A. Sonnenberg, PhD

Structural/Sequence Stratigraphic Field Course

An Introduction to Tectonic Stratigraphy

Lans Taylor, PhD

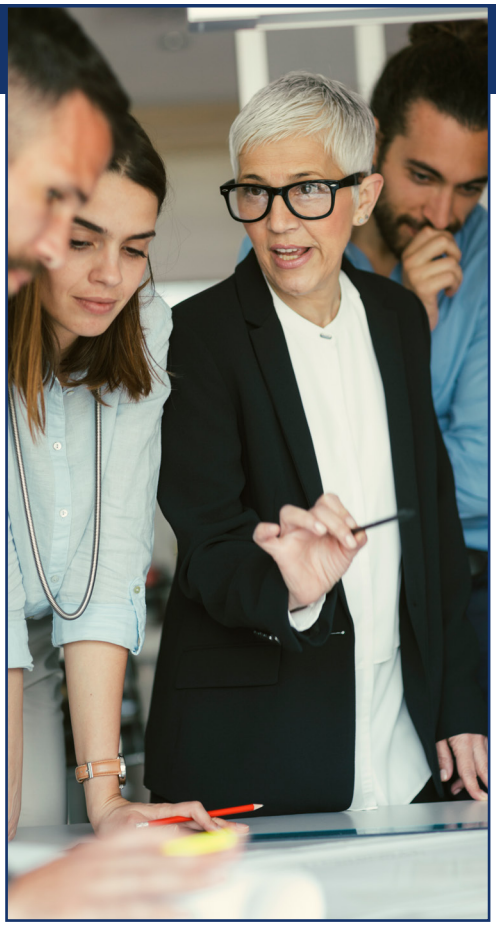
The Upper Texas Coast as Reservoir Analogs

Julia Smith Wellner, PhD

Geosteering: The Space Between Geology and Drilling Engineering

Raymond Woodward

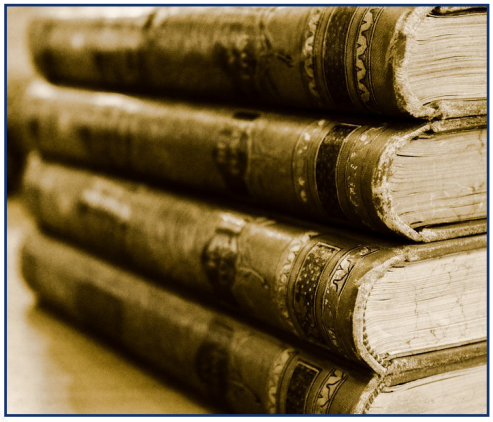
Upcoming Training Schedule



JUL	06-07	PRMS & SEC Reserves and Resources Regulations	Lee
	06-08	Reservoir Scale Geomechanics (LIVE ONLINE)	Fox
	06-10	Pressure Transient Well Test Design and Interpretation	Economides
	13-14	Reservoir Management of Unconventional Reservoirs (Midland, TX)	Kabir
	13-15	Refrac Candidate Selection, Execution, and Performance Evaluation for Conventional and Unconventional Reservoirs (LIVE ONLINE)	Barba
	13-16	Project Management Professional Exam Prep	Almaguer
	21-24	Introduction to Subsurface Machine Learning (LIVE ONLINE)	Pyrcz
	27-29	Practical Interpretation of Open Hole Logs (LIVE ONLINE PART 1)	Barba
AUG	03-05	Practical Interpretation of Open Hole Logs (LIVE ONLINE PART 2)	Barba
	03-07	Artificial Lift & Production Optimization Solutions (Midland, TX)	Chokshi
	03-07	Applied Subsurface Geological Mapping (Denver, CO)	Brenneke
	8/10 - 10/30	The Daniel J. Tearpock Geoscience Certification Program ("Geoscience Boot Camp")	SCA Staff
	10	Basics of the Petroleum Industry	Miller
	10-14	Introduction to Energy Data Science in Python (LIVE ONLINE)	Foster
	11-14	Structural Styles in Petroleum Exploration & Production	Taylor
	15-16	Structural & Sequence Stratigraphy Field Course (Hill Country)	Taylor
	17,19,21	Drilling Fluids (LIVE ONLINE)	Richards
	17-21	Applied Subsurface Geological Mapping (Midland, TX)	Brenneke
	17-21	Sequence Stratigraphy Applied to O&G Exploration	Lopez-Gamundi
	24-28	Practical Interpretation of Open Hole Logs	Barba
	26-28	Basics of the Petroleum Industry (LIVE ONLINE)	Howes
	8/31-9/02	Applied Seismic Interpretation	Willis
	8/31-9/04	Carbonate Sedimentology and Sequence Stratigraphy	Lopez-Gamundi
SEPT	03-04	Hand Contouring Workshop	Agah
	08-09	Predicting Organic Shale Well Performance	Barba
	08-10	Sequence Stratigraphy Applied to O&G Exploration (LIVE ONLINE)	Lopez-Gamundi
	08-11	Applied Subsurface Geological Mapping	Agah
	14-15	Applied Drilling Engineering Optimization for Drilling Engineers (Midland, TX)	Samuel
	14-16	Mapping Seismic Data Workshop	Cherry
	16-17	Applied Drillstring Mechanics for Drilling Engineers (Midland, TX)	Samuel
	17-18	Basic Petroleum Engineering for Non-Engineers	Howes
	18	Principles and Practices of Mud Motor (Midland, TX)	Samuel
	21-23	Petroleum Fluids and Source Rock in E&P Projects (LIVE ONLINE PART 1)	Milkov
	26	Modern Coastal Systems of Texas Field Course (Galveston, TX)	Wellner
	28-30	Petroleum Fluids and Source Rock in E&P Projects (LIVE ONLINE PART 2)	Milkov
	9/28-10/2	Applied Subsurface Geological Mapping (Dallas, TX)	Agah

Flagship Course Bootcamp Course

All courses are located in Houston unless noted otherwise.



About SCA

Our Services

Subsurface Consultants & Associates, LLC provides upstream consultancy and training to professionals in the oil and gas industry. Founded in 1988 by Daniel J. Tearpock, SCA's primary services are consulting and direct-hire recruiting, training, upstream projects and studies, quality assurance, and oil and gas advisory.

IHRDC

Competency Development

IHRDC is a Boston-based company that accelerates workforce development through customized solutions to fit client needs. Through our Joint Marketing and Sales Agreement, SCA and IHRDC offer the oil and gas industry a broad spectrum of high-quality training content and effective blended learning delivery options.

Excellence That Runs Deep

SCA is considered an industry leader in subsurface exploration and development interpretation and mapping. We provide the personnel, technology, and proven methodologies that foster success by enabling better business decisions.

Pandemic Classroom Safety Regulations

SCA has implemented guidelines set forth by the Center for Disease Control and Prevention into our standard health and safety protocols to ensure a safe training environment.

This includes the following procedures:

- Regular temperature checks
- Use of cloth face coverings
- Social distancing guidelines
- Provision of sanitizing materials
- Routine cleaning and disinfecting of frequently touched surfaces

Pictured left are the participants of SCA's June 8th offering of our flagship course, *Applied Subsurface Geological Mapping.* The students are pictured with SCA's instructor, **Sia Agah**, to the far left.

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