AAPG

WORKSHOP BROCHURE

24-26 November 2025 | Movenpick Hotel
Al Khobar, Saudi Arabia

3RD EDITION

DECISION BASED INTEGRATED RESERVOIR MODELING

TECHNICAL PROGRAM COMMITTEE

Louis Dcosta (Co-Chair)
PDO

Firas Awam (Co-Chair)
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Heriot-Watt University

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Gaurav Mahanti
Shell

Anastasia Poole
Slb

Colin Daly
Slb

Guillaume Caumon
Université de Lorraine

WORKSHOP OUTLINE

WORKSHOP OVERVIEW

Building upon the success of the previous two editions of the Decision-Based Integrated Reservoir Modeling workshop, we proudly announce the third edition, focusing on leveraging Artificial Intelligence (AI) and Machine Learning (ML) innovations to revolutionize reservoir modeling under the umbrella of Decision-Based Modeling (DBM). Ultimately, our objective is to realize a Live Earth Model (LEM), a dynamic, data-integrated representation of the subsurface that synchronizes seamlessly with real-time updates from diverse data sources.

We'll explore cutting-edge AI and ML methodologies, including deep learning and physics-informed neural networks, and their practical applications in reservoir modeling, underscoring how these innovations can enhance Decision-Based Modeling (DBM) workflows and drive progress toward realizing the Live Earth Model (LEM). Furthermore, we'll analyze strategies for integrating diverse datasets, encompassing seismic data, well logs, core analyses, production data, and geological interpretations, to construct comprehensive and predictive reservoir models. Moreover, we'll delve into the realms of uncertainty quantification and risk probabilities in the context of reservoir modeling. Notably, we'll also address the critical role of DBM in supporting sustainable practices, particularly in the realm of Carbon Capture and Storage (CCS), where precise characterization of subsurface formations is essential for secure and efficient CO_2 sequestration. The workshop will additionally cover the application of DBM techniques in geothermal energy exploration and mineral resource prospecting.

BENEFITS OF ATTENDING

Participants can look forward to a packed schedule consisting of keynote addresses, engaging oral presentations, and poster sessions by renowned industry and academia experts. Real-world examples showcased throughout the workshop will illustrate the effective application of cutting-edge reservoir modeling technologies and robust multidisciplinary data integration, leading to successful accomplishments in field development. Some key topic categories include:

- Enhancing Reservoir Modeling through Artificial Intelligence and Machine Learning Applications.
- Decision-based Modeling: Current Developments and Future Trends.
- Real-time Joint Static and Dynamic Reservoir Modeling.
- Does DBM have a role to play in geothermal energy exploration and mineral resources prospecting?
- Advances in Reservoir Modeling for Carbon Capture, Utilization, and Storage: From Characterization to Monitoring and Verification.

TARGET AUDIENCE

Professionals from various disciplines, including geology, geophysicist, reservoir modeling, and data science, with a foundation in Decision-Based Modeling (DBM), constitute our primary audience. Participants can expect to expand their knowledge in Artificial Intelligence (AI) and Machine Learning (ML) and their applications in reservoir modeling, especially regarding their value in enhancing DBM and advancing toward the realization of the Live Earth Model (LEM) vision.

WORKSHOP GUIDELINES

FORMAT

The workshop will be 3 days, consisting of oral presentations, poster presentations and breakout sessions where participants can discuss and investigate a specific theme that is of mutual interest. The first day will feature an inaugural keynote speech by a high-profile professional from the industry.

ATTENDANCE

Registrations are invited from all relevant disciplines with experience and/or knowledge of the subject areas being addressed in the workshop. Registrations will be accepted on a first-come, first-served basis.

CALL FOR POSTERS

You are invited to prepare a poster for presentation at the workshop. If you are interested in participating, please send a short abstract to cnavarro@aapg.org by **27 October 2025**. All posters will be produced as pull-up banners and delivered by AAPG. There will not be any other format available for poster display.

REGISTRATION TYPES & FEES

Fees are inclusive of onsite documentation, coffee breaks and luncheons.

$1,850 Non-Member	$850 Young Professional **
$1,850 Join & Save	$500 Academia
$1,650 Member *	$350 Student (Masters)
$1,550 Committee/Presenter	

*To avail the Member rate you must be an active member of AAPG, KGS, GSO or DGS.

**To register as a Young Professional you must be under the age of 35 with less than 10 years of work experience.

REGISTRATION DEADLINE

To guarantee your seat, please make sure to register by **17 November 2025.**

CANCELLATION POLICY

AAPG will refund the tuition, less a $100 processing fee, if the request is received no later than 30 days prior to the workshop. Cancellations must be made in writing. The registrar will accept cancellation notices by telephone, but all such notices must be followed up by fax or e-mail. No refund will be made for cancellations received less than 30 days prior to a workshop being given. Nonpayment of tuition does not constitute automatic cancellation. If no cancellation notice is received by 30 days prior to a workshop, participants are liable for full tuition. AAPG reserves the right to cancel a workshop if enrollment is insufficient to ensure proper effectiveness. Substitutions for individuals can be made at any time. A paid enrollment may be transferred one time to a future workshop if the request is received prior to the 30-day cut-off date.

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WORKSHOP SESSION DESCRIPTIONS

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DAY 1: MONDAY 24TH NOVEMBER

SESSION 1: DBM TRANSFORMATIVE JOURNEY: MILESTONES, LATEST PROGRESS, AND THE ROAD AHEAD

Join us on a journey through the evolution of Decision-Based Modeling (DBM), a holistic approach that integrates geological, geophysical, and engineering data to support informed decision-making in reservoir modeling. DBM is a systematic process that quantifies uncertainty, evaluates multiple scenarios, and optimizes outcomes, enabling teams to make better decisions and reduce risk. This session will delve into the transformative progress of DBM, from its inception to the latest advancements and innovations. Key milestones, successes, and challenges will be underscored, providing valuable insights into the current state of DBM. Discover how DBM's unique blend of data-driven analysis, probabilistic modeling, and collaborative workflows enhances reservoir modeling, and explore the road ahead for this discipline. Gain insights from real-world case studies and benchmarked best practices, enabling you to unlock the full potential of DBM in your own reservoir modeling endeavors.

SESSION 2: MULTIDISCIPLINARY DATA INTEGRATION IN RESERVOIR MODELING

Real time integration of diverse sources of data covering various spatio-temporal scales is a key component of DBM. It continues to be a challenge as the problems are typically ill posed meaning that non-uniqueness and uncertainty must feature in any proposed solution. This session will consider practical and innovative paradigms for this data integration, showcasing new approaches in geostatistics, geomodeling, data assimilation and multi-modal AI techniques. Topics will cover the integration of a range of drilling data, geophysical data and production data used for reservoir characterization and monitoring. Both new data types and innovative integration techniques will be considered. Attendees will learn and discuss about how to best integrate domain knowledge in modern data science approaches to increase model predictivity and interpretability. This session will provide new insights about how to best harness subsurface complexity, quantify uncertainties, assess the value of new data, and align data integration tasks with the needs of decision making.

DAY 2: TUESDAY 25TH NOVEMBER

SESSION 3: EMBRACING INNOVATION: AI AND ML

This session highlights the transformative potential of Artificial Intelligence (AI) and Machine Learning (ML) in advancing Decision-Based Modeling (DBM) workflows in subsurface reservoirs. We will examine how emerging AI/ML techniques—ranging from deep learning to physics-informed neural networks—can be integrated with traditional reservoir modeling practices to deliver real-time data assimilation, heightened predictive accuracy, and more robust decision-making.

Attendees will gain insights into the synthesis of diverse datasets (seismic, well logs, production data, and geological interpretations) into unified predictive models that adapt continuously as new information becomes available. Breakthroughs in generative AI for geological modeling to create realistic geological representations that honor both spatial constraints and geological principles. We'll explore how these generative approaches enable rapid model updates and scenario generation while maintaining geological consistency, facilitating efficient exploration of multiple geological interpretations and uncertainty assessment.

Special attention will be paid to uncertainty quantification, where AI-driven probabilistic approaches offer deeper understanding of reservoir risk and reliability. The session demonstrates how modern ML-powered tools enable interactive model editing and real-time updates, allowing geoscientists to efficiently incorporate new data and expert knowledge while preserving geological realism. The session also explores how AI/ML solutions contribute to sustainable energy initiatives, such as geothermal exploration and Carbon Capture and Storage (CCS), by refining subsurface characterization and monitoring capabilities.

SESSION 4: THE "LIVE EARTH MODEL": REALITY OR ILLUSION?

In this session, we will explore the cutting-edge advancements in real-time monitoring and predictive modeling of subsurface conditions. You will gain insights into how the Live Earth Model leverages advanced algorithms and machine learning techniques to integrate various data sources, creating a continuously updated spatial representation of the subsurface environment. Throughout this session, we will discuss the benefits and challenges associated with the Live Earth Model, including its potential to revolutionize conventional modeling techniques and the hurdles that need to be overcome for its widespread adoption. Expect to learn about the latest advancements in artificial intelligence (AI), machine learning (ML), high-resolution 3D seismic imaging, latest advancement in data acquisition while drilling, and advanced geo-mechanical modeling that are enhancing the accuracy and efficiency of subsurface models.

Join us as we delve into whether the Live Earth Model is a groundbreaking reality or merely an intriguing illusion exacerbated by high cost of implementation, data integration complexities, and the need for continuous data quality assurance. Prepare to challenge your perspectives, engage in thought-provoking discussions, and expand your understanding of this innovative technology.

DAY 3: WEDNESDAY 26TH NOVEMBER

SESSION 5: ROLE AND VALUE OF DBM IN ENERGY TRANSITION AND SUSTAINABILITY

This session explores the application of Decision-Based Modeling beyond its traditional use in the oil and gas industry, focusing on areas like energy transition and sustainability. The goal is to adapt established methods to new technologies and approaches in fields such as:

1. Geothermal Energy: Applying modeling techniques to optimize geothermal resource utilization.
2. Carbon Capture, Utilization, and Storage (CCUS): Using models to enhance efficiency in carbon management.
3. Hydrogen Production: Integrating decision-based models for efficient hydrogen production processes.
4. Subsurface Storage for Energy Vectors: Modeling optimal storage solutions for various energy forms.
5. Renewable Energy Integration: Employing decision support systems to streamline renewable energy integration into existing grids.

By leveraging these tried-and-tested methods with new technologies, industries can navigate complex decisions more effectively during the transition towards sustainable energy systems.

TO REGISTER, PLEASE CLICK **HERE**

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FOR MORE INFORMATION
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FIELD TRIP

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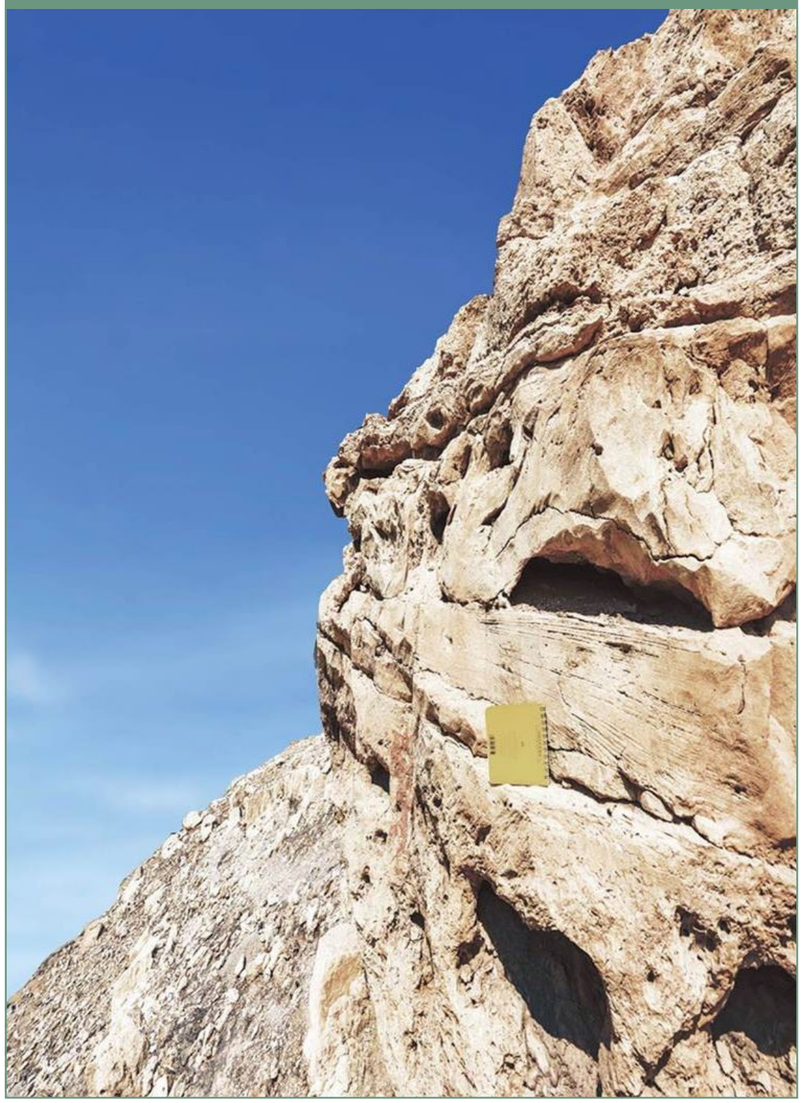
EXPLORE THE DAMMAM DOME – EXCLUSIVE ONE-DAY FIELD TRIP



FIELD TRIP INFORMATION

Field Trip Leaders (Saudi Aramco)

Mohammed Marhoon

Ibrahim Alghamdi

Mohammed Saleh

Jassim Safwani

Date	Time	Registration Fee
27th November	8am – 2pm	TBC

JOIN FELLOW GEOSCIENTISTS AND ENGINEERS ON NOVEMBER 27, 2025 FOR A ONE-DAY GEOLOGICAL FIELD ADVENTURE TO THE ICONIC DAMMAM DOME IN SAUDI ARABIA.

This trip – a highlight of AAPG's Decision-Based Integrated Reservoir Modeling workshop – offers an unparalleled hands-on experience that bridges outcrop geology and subsurface reservoir modeling. You'll explore the very hills that form the surface expression of the Dammam Dome (site of Saudi Arabia's first oil discovery), and directly connect what you see in the field to what you use in the office for 3D reservoir models and decision-making.

FIELD TRIP HIGHLIGHTS AND POSSIBLE LOCATIONS INCLUDING:

- **Muarikibat Park**

Traverse a key outcrop showcasing the Dammam Dome's structural features. Examine folded and faulted rock layers up close, and learn how these surface structures relate to subsurface reservoirs, and discuss trapping mechanisms and structural influences on reservoir continuity.

- **Dana Park, Dhahran**

Visit an accessible exposure in Dhahran that reveals the local stratigraphic column and petrophysical characteristics of reservoir formations.

FIELDTRIP OUTCOMES

- **Hands-on Learning**

Conduct field observations of geological features and immediately learn to integrate them with corresponding seismic signatures, structural maps, and petrophysical log data. By comparing outcrop findings with subsurface data, you'll reinforce an integrated interpretation approach – the cornerstone of decision-based modeling.

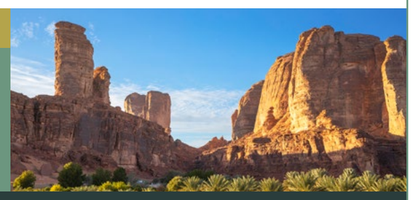
- **Porosity-Permeability Insights**

Investigate pore spaces and fluid flow pathways in the exposed rocks. Through guided discussions, participants will connect porosity–permeability relationships observed in the field to those used in subsurface models.

- **Cross-Bedding & FMI Analysis**

Spot beautiful cross-bedding and sedimentary structures in outcrop, then learn how these features correlate with patterns seen in Formation MicroImager (FMI) borehole image logs. Using real examples, you'll analyze how high-resolution FMI images capture bedding and fracture details similar to what's observed in the field.

WHY ATTEND?



This exclusive field trip adds invaluable context to your reservoir modeling toolkit. By walking through real outcrops, you'll gain a tangible understanding of subsurface concepts – an experience that lectures and computer models alone can't provide.

DON'T MISS THIS CHANCE TO UNLOCK THE SUBSURFACE SECRETS OF DAMMAM DOME AND ELEVATE YOUR RESERVOIR MODELING EXPERTISE.

Secure your spot on this one-day field adventure and take your professional skills to new heights – where the rocks will tell the story that guides better decisions in your next reservoir model!

TO REGISTER, PLEASE CLICK **HERE**

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