EAGE

EUROPEAN
ASSOCIATION OF
GEOSCIENTISTS &
ENGINEERS

Third EAGE Workshop on Pore Pressure Prediction

• **Workshop Brochure | Call for Abstracts**

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TECHNICAL COMMITTEE

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ABOUT THE WORKSHOP

Pore pressure and fracture gradient prediction and detection are key components of efficient exploration for hydrocarbons and their safe production. The impact of this area of science can influence all parts of the value chain from basin entry, prospect ranking, exploration planning and drilling, development, abandonment and, more recently, carbon capture and storage.

The direct application of pore pressure and fracture gradient in the assessment of a prospect can have a profound impact where structures with less window for trapping of hydrocarbons are discarded in favour of those with conventional or hydrodynamically enhanced traps. Often the effective stress history can provide inputs to the reservoir quality assessment and, in some cases, PPFG studies can fundamentally change the geological model in new basins. This work is especially important in times of lower oil price and less drilling activity and we hope to share examples of the value derived from this type of work.

The science of pore pressure and stress prediction has improved greatly over the last 20 years with ever-greater understanding of the different mechanisms that generate overpressure and the evolution of stresses. Academic research into rock properties and their evolution with time and effective stress is important and constantly evolving. Applying this new theory allows us to be more precise when making predictions in complex environments than more empirical methods derived in simpler geological environments. In addition to new theory, the ever greater ability to solve problems in 3D and to employ the power of AI and Machine Learning have the ability to increase the volume and the quality of our work compared to previous years.

While such approaches and new tools improve the accuracy of our pressure prediction and detection, they can make the communication of our results with our clients more complicated. It is important our community keeps focussed on the presentation of our results to non-specialists to ensure the message is received. With the business environment restricting travel and face-to-face interaction, it is more important than ever to rise to this challenge and to pass on, clearly, our identified risks and recommendations to those tasked with safe well planning and execution.

AIMS OF THE WORKSHOP

Following the very successful Pore Pressure Workshops held in Pau in 2017 and Amsterdam in May 2019, the objective of this third workshop is to provide a forum to share technical practices, share challenges and present solutions.

We plan to discuss current and future research efforts to resolve some of the main technical challenges in the field. The audience involved in this domain is wide: i.e., Exploration Geologists for the basin / prospect scale knowledge, Operations Geologists for well planning and execution, Scientists in research positions who are advancing the theory of rock property evolution, Petroleum Systems Analysts for their basin modeling expertise, Geophysicists for seismic attributes knowledge, Geomechanical Engineers for rock failure analysis and Well Engineers directly involved in well design and execution.

Specialists in all of these disciplines are thus invited to this forum. Obviously pore pressure, fracture gradient and geomechanics specialists from all parts of the value chain are also key participants of this workshop given their role in combining the theory and data to make and communicate their predictions.

WORKSHOP OVERVIEW

6 December 2020	Technical Programme + Workshop Dinner
7 December 2020	Technical Programme + Networking Reception

TOPICS

The committee would like to encourage you to submit your abstracts about Pore Pressure Prediction on the following specific topics:

1. **Pore Pressure and Stress Analysis for Hydrocarbon Exploration and CO_2 Storage**
- What is the interplay between pore pressure, stress and the interpretation and assessment of the geological configuration of traps?
- What methods are used to assess caprock integrity and sealing capacity (basin modelling, seismic attribute analysis, other)?
- How do we perform such evaluation in complex fold and thrust, salt tectonic or other environments?
- Does our estimation of effective stress history affect reservoir quality assessment?
- Case studies incorporating pore pressure and stress analyses

2. **Advances in Rock Property Modeling for Pore Pressure and Stress Prediction**
- Integration of geomechanical and petrophysical shale properties for prediction of pressure and stress in overpressured environments
- How do practitioners incorporate processes such as smectite to illite transformation, creep compaction, different mineralogy and clay fractions in their estimation of pore pressure and stress?
- How are mechanical and petrophysical properties of other rock types (not shale) incorporated into the analysis and prediction of pore pressure and stress?

"Improving our predictions is equally as important as quantifying the uncertainties and communicating them"

- How do local stress variations and uncertainties regarding the stress regime impact pore pressure analysis and prediction?
- Case studies

3. Pore Pressure Detection and Prediction During Drilling Operations

- Are LWD tools that can look ahead of the bit being used in operations?
- Are VSP lookaheads being used with any success?
- How are the pre-drill models updated with the acquired data and observations while drilling?
- Case studies of challenging pore pressure while drilling examples

4. 3D Pore Pressure Models, are they a Game Changer or a Pitfall?

- What techniques are used to build 3D pore pressure and geomechanical models? How are they being used?
- Do we have examples of integration with reservoir modeling during development, production and abandonment?

5. New Technology / Approaches

- Are Artificial Intelligence / Machine learning techniques being applied to pore pressure prediction and detection?
- Are any developments from the carbon capture and storage and geothermal energy areas impacting conventional pore pressure and fracture gradient prediction?
- Some examples of faster basin modeling techniques have been proposed in recent years, are these in active use?
- Are models benefiting from techniques such as automatic seismic and log interpretation?

SUBMISSION GUIDELINES

The technical committee invites submissions of 2-4 page abstracts until 3 September 2020. To submit your abstract and read all guidelines please visit the event website via events.eage.org.

IMPORTANT DATES
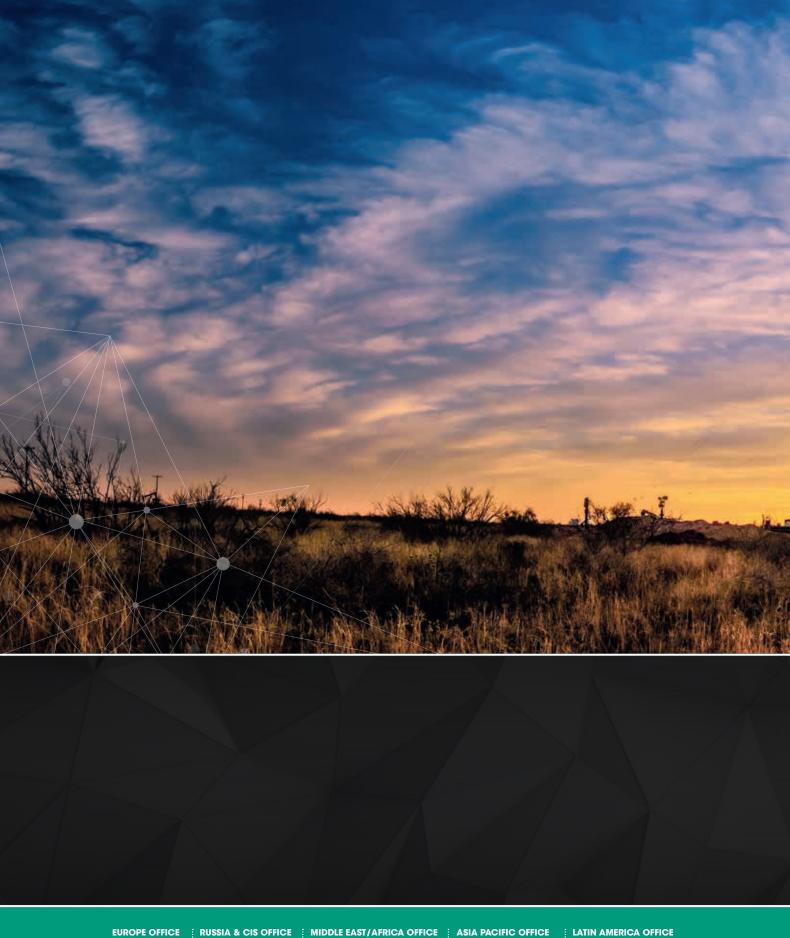
The Call for Abstracts is now open!

Abstract Submission Deadline	3 September 2020
Early Registration Deadline	15 November 2020
Regular Registration Deadline	1 November 2020
Third EAGE Workshop on Pore Pressure Prediction	6-7 December 2020

SPONSORING

The Third EAGE Workshop on Pore Pressure Prediction offers excellent sponsoring opportunities to create high visibility for your brand. For more information about sponsoring, please refer to the 'Sponsoring Opportunities' page on the event website (via events.eage.org) or contact us via eage.events@eage.org.

CONTACT

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