

The image features a green rectangular logo in the top left corner with the text 'EAGE' in large white letters and 'EUROPEAN ASSOCIATION OF GEOSCIENTISTS & ENGINEERS' in smaller white letters below it. The background is a landscape of rugged, brown mountains under a clear blue sky. In the top right corner, there is a white geometric network pattern consisting of interconnected lines and dots.

EAGE

EUROPEAN
ASSOCIATION OF
GEOSCIENTISTS &
ENGINEERS

4th Naturally Fractured Reservoir Workshop

**FRACTURED RESERVOIRS IN THE 21ST CENTURY...
OVERCOME THE LIMITATIONS FOR SMARTER PREDICTIONS**

11-13 FEBRUARY 2020 • RAS AL KHAIMAH, UNITED ARAB EMIRATES

- **First Announcement and Call for Abstracts**
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WORKSHOP OVERVIEW

In 2018, the third edition of the EAGE Workshop on Naturally Fractured Reservoirs focused on the *calibration* issues when characterizing and modelling these reservoirs. In this regard, the adequate use of conceptual models and appropriate multidisciplinary data was discussed in constraining our static and dynamic models. The challenges to evaluate and capture the related uncertainties were as well exposed. For this fourth edition, we would like to dedicate the workshop to *future aspects of fractured reservoirs*. This will be done keeping in mind all the fundamental progress achieved during the recent past in the domains of:

- Fracture mechanics
- Structural history and its impact on loading and fracturing paths
- Characterization methods for fracture distribution statistics
- Static modelling of fractured reservoir
- Development of fractured reservoir-dedicated flow simulation methods

Three main topics will be proposed for the technical sessions which will cover (1) the aspects of exploration and appraisal of fractured reservoirs, (2) the recent and future developments of fracture geology and (3) the links between the static and dynamic fractured reservoir models. For these three topics, an effort will be made to include all relevant input from new technologies and modeling methods, 3D visualization and 4D field monitoring, as well as the recent advances in managing uncertainties and risks. The idea will be to identify and evaluate possible new ways to overcome the current limitations of our workflows. In addition, opening these topics and discussions to novel sources of energy such as geothermal resources will be very much encouraged.

We welcome abstracts focusing on the following topics:

1. Exploration and appraisal aspects of fractured reservoirs

When a limited amount of data is available to evaluate a potentially fractured prospect, we need to keep a critical eye on our workflows and on how we use the modelling tools to overcome these restrictions.

- What are the advances in managing uncertainty and risks?
- How well do we understand model uncertainties, errors, and limitations and how do these influence our predictions and forecasts?

- Are the models properly calibrated?
- Can subsurface analogues, geological analogues and laboratory measurements reduce uncertainty and increase modeling reliability?

2. Recent and future developments in Fracture Geology

Recent developments deeply impact the everyday life of oil and gas geoscientists working in fractured reservoirs. In the past 10-15 years, we have learnt much in terms of fracture mechanics, kinematics, distribution statistics, etc.

- How far is this integrated in our workflows?
- What are we missing that could be a game changer in the coming years of fractured reservoir development?
- What are the new technologies and new modelling methods in creating, manipulating, visualizing, and updating models to reach higher quality/smarter decisions?
- Are we skilled enough for fully integrating big data?
- What are the most forward-looking advances in laboratory measurements, field monitoring, (underground and analogues), visualization (virtual and augmented reality)?
- What about artificial intelligence in reservoir modelling?

3. From static fracture models to dynamic simulation: what matters?

When transferring from static fracture models to dynamic simulation, some parameters are systematically lost.

- How do they influence the reliability of our models despite any calibration effort?
- What level of details do we need to transfer into dynamic models to capture the physics of reservoir flow?

Multiple scales of fractures have different roles in reservoir dynamics. Among these, and since they can occur at all time from the rock embrittlement to exploitation, small background fractures can have various influences on the reservoirs.

- Which fractures do matter in a given reservoir?
- In which case, how and when do they occur and influence reservoir properties?
- What can we learn from the geological history, mechanical and chemistry aspects? What is the fluid chemistry impact on rock strength, dissolution / karstification?
- Current static modelling tools tend to capture high level of detail. However, can dynamic simulation tools integrate this level of detail in reservoir flow prediction?
- Can we set-up rules of thumb to define which fractures to include or exclude from the models as a function of the type of fractured reservoir and of the development strategies selected for a given field?

To approach these questions, we will explicitly discuss when and how to model fractured reservoirs differently depending on the field type. Different cases should be distinguished such as (1) green fields, (2) brown fields (with the aspects of infill drilling, remaining drainage areas and IOR/EOR opportunities), (3) unconventional resources (including the possible interactions between natural fractures and hydraulic fracturing jobs), and (4) geothermal resources.



CALL FOR ABSTRACTS

The technical committee invites you to submit an abstract of 2-4 pages. Abstracts should be submitted via the EAGE website using the downloads template. Abstracts will be accepted for both oral and poster presentations. The deadline for submitting abstracts is 20 October 2019.

IMPORTANT DATES

Call for Papers Open	25 th April 2019
Call for Papers Close	20 th October 2019
Early Registration Opens	1 st October 2019
Late Registration Opens	20 th January 2020
Online Registration Closes	1 st February 2020

WHO SHOULD ATTEND?

The Fourth Edition of Naturally Fractured Reservoir Workshop welcomes attendance and contribution from all sectors in the industry, academic and research institutes.

SPONSORSHIP OPPORTUNITIES

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