

EAGE

EUROPEAN
ASSOCIATION OF
GEOSCIENTISTS &
ENGINEERS



EAGE Workshop on Naturally Fractured Reservoirs in Asia Pacific

27-28 APRIL 2022 • ONLINE

- **First Announcement**

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ABOUT THE WORKSHOP

Naturally fractured reservoir in basement rocks has proven to produce a significant amount of hydrocarbon. However, the exploration and development scheme in basement reservoir has been considered to be very limited or exclusive (e.g. only in several places such as in Cuu Long Basin, Vietnam, Suban, South Sumatra basin, Indonesia and Malay Basin, Malaysia).

It is a known fact that there are plenty of potential targets around Asia Pacific, however, basement reservoirs are considered as high-risk exploration targets and the exploration task is challenging. As a consequence, the proposal to develop the basement rock reservoir is less attractive and has a lower priority compared to other traditional prospects. This workshop is designed to revive the spirit of exploring the basement fractures potential in the Asia-Pacific region.

The workshop with its theme: *“Naturally Fractured Reservoir in Basement Rocks with Geological-Geomechanical-Geophysical Insights”* will take place from 27-28 April 2022 fully virtual.

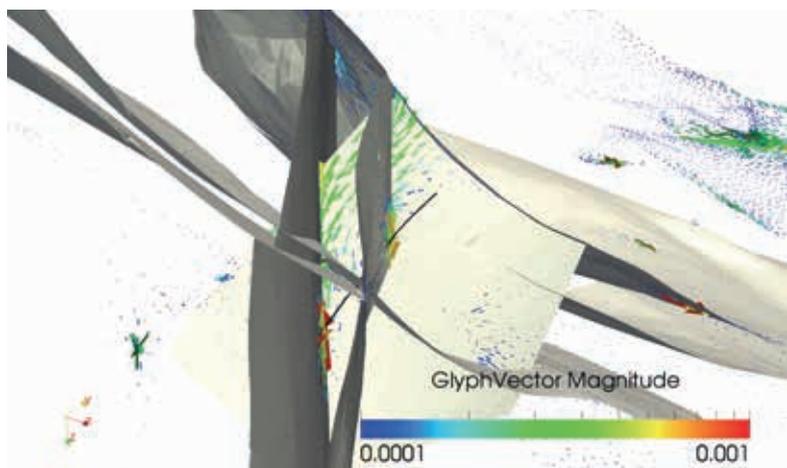
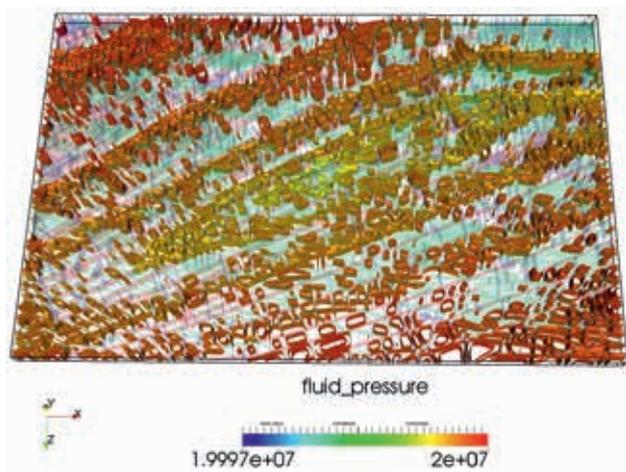
SUBMISSION TOPICS

Fractured Reservoir Characterization

Characterising fracture geometry, abutting relationships, and aperture distributions in situ is challenging because the fractures can be observed directly only in the wells penetrating a Naturally Fractured Reservoir (NFR). Equally important is the characterisation of faults and their relationship with fractures. This session is inviting presentations on novel methods, integrated approaches, workflows, and algorithms aiding NFR characterisation. All types of contributions, including outcrop analogue studies, image logging, flow logging, and geophysical investigations are welcome.

Reservoir Modelling

Fractures and faults occur on multiple length scales, have widely varying properties, and their intersection gives rise to complex reservoir geometries. How can these features be represented in geomodels that are sufficiently realistic and site-specific to be useful for field development and recovery optimisation? – This session focusses on geomodelling and the population of models with properties, including



methodologic, proof-of-concept and benchmarking studies as well as competing approaches such as Discrete Fracture and Matrix vs multiple interacting continua methods. The aim is to share our understanding of contemporary and emerging tools, learning about their performance and practical limitations.

Fractured Reservoir Simulation

Forecasting the production behaviour and performance of NFR and basement reservoirs is arguably the biggest challenge that reservoir simulation is faced with today. The processes that must be simulated go far beyond multiphase Darcy flow in a porous medium, and the mechanic response to fluid pressure variations that alter fracture aperture and changes in the stress state must be considered. While this is outside of the realm of traditional reservoir engineering, other engineering disciplines have made advances in this area. Also new “multiphysics” simulation tools have become available. This session opens the floor for presentations on this exciting subject.

Geomechanics, Drilling and Completion Challenges

Beyond 20th century idealisations like the Mohr envelope or the “earth pressure coefficient”, the utmost importance of geomechanics for NFR operations has been widely recognised ever since operations moved to more challenging geologic environments and stress regimes. Simultaneously, completion design has come of age, but getting reproducible well performance from NFRs remains a challenge. This session is open to conceptual, drilling engineering, workover, reservoir simulation and field studies on this challenging topic.

Increasing Recovery from Naturally Fractured Reservoirs

Recovery from NFRs is adversely affected by a whole range of issues like water breakthrough, water coning or lateral ingression into production wells, crossflow among reservoir layers, the difficulty of pressure maintenance, loss of permeability over time, unfavourable wettability, and fracture closure or clogging by mineral precipitation once hydrocarbons are replaced by formation brine. This session invites presentations on fundamental reservoir-engineering as well as field- and simulation studies on this multi-faceted subject with the aim to share technologic breakthroughs and learn about new technology available to enhance recovery.

New Frontiers in Seismic Methods

The increase of computational power and the introduction of new methods like full wave form inversion and artificial intelligence assisted interpretation are greatly enhancing our ability to image the subsurface. Moreover, cost reductions and passive seismic techniques and-or joint inversion strategies harnessing the power of other geophysical imaging techniques have improved real-time monitoring delivering unprecedented dynamic data for assimilation into models for real-time reservoir management. Which of these breakthroughs are relevant to NFR? – We invite you to present your recent insights with the participants of this session.

Lesson Learnt from Tight vs Conventional Fractured Reservoirs

The last 15 years have seen a rise in production from shale-oil and gas reservoirs that dwarfed all expectations. Facilitated by the commoditisation of drilling and the invention of new stimulation technologies, hydrocarbons can now be produced economically from rocks that were previously regarded as impervious. How much has this flurry of activity enhanced our understanding of the fracturing process? – To what degree can fracture permeability be maintained using proppants? – Are these techniques transferrable to natural fractures? – The presentations in this session will contrast and compare fracking and related technology with NFR practices, highlighting potential synergies as well fundamental differences.

CCUS in Naturally Fractured Reservoirs

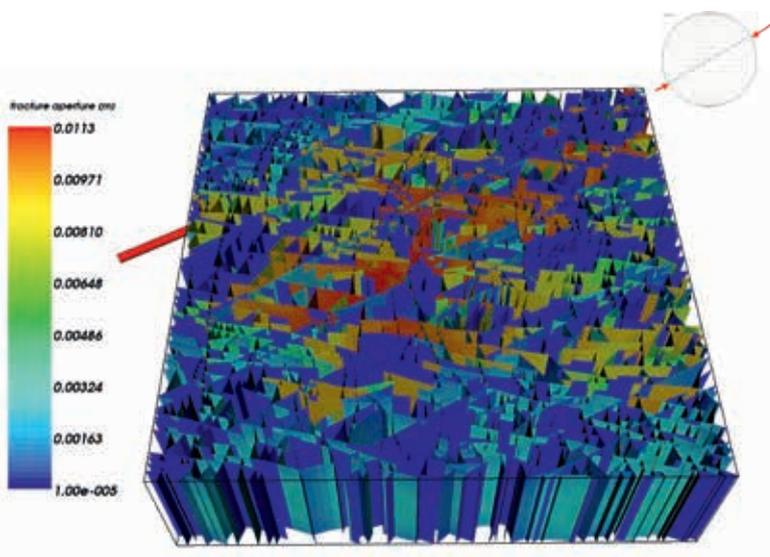
As illustrated by the Weyburn NFR, Canada, carbon dioxide can be the preferred displacement agent in oil- or mixed wet reservoirs above the minimum miscibility pressure. Since the economics of EOR by CO2 flooding are dramatically improving (the US gov. now pays 80\$ per tonne of sequestered anthropogenic CO2), CCUS is highly attractive for carbonate reservoirs, co-optimising CO2 sequestration and oil recovery. Opportunities to put this into practice present themselves, for instance, in Indonesia. This session invites presentations about the process as well as pilot projects, planned, developed or even executed. The goal is to share our knowledge to expedite the decarbonation of Pan-Pacific economies.

E&P Case Studies

Oil and gas operators in the Asia -Pacific region maintain a rich portfolio of NFRs. The fractured basement reservoirs



offshore Vietnam are unique in the world and significant know-how and technology have been developed and first deployed there, driving international technologic progress. This session provides an ideal opportunity to present case studies, feature new technology, share learnings, or seek advice from the team of NFR experts that this conference will bring together. The goal is to explore how to improve operation and enhance recovery from the unique collection of reservoirs in this important region of the world given new and emerging technologies.



TECHNICAL PROGRAMME COMMITTEE

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KEY DATES

Call for Abstracts Deadline	21 February 2022
Online Registration Deadline	25 April 2022



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