



Society of Petroleum Engineers

EAGE

EUROPEAN
ASSOCIATION OF
GEOSCIENTISTS &
ENGINEERS

Sign up before 31 July 2017 for Super Early Bird Discount!

SPE/EAGE Workshop: Geohazards

25 – 26 September 2017 | Kuala Lumpur, Malaysia

Group Registrations Available: Contact us at spekl@spe.org for your group

TECHNICAL PROGRAMME COMMITTEE

CO-CHAIRPERSONS

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Gaffney, Cline & Associates

Peter Majid
Head – Resource Management SK
PETRONAS

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Custodian (Petroleum System Modelling)/
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PETRONAS Carigali

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ADVISORS

Mohd Abshar Mohd Nor
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PETRONAS Carigali

Maike Willuweit
Chief Geoscientist AP
Roxar Software Solutions



Who Should Attend

- Drilling Engineers
- Facility Engineers
- Geomatics Engineers
- Reservoir Engineers
- Well Engineers
- Geologists
- Geomodellers
- Geophysicists
- Petrophysicists
- Asset Managers
- Exploration and Development Managers
- Subsurface Managers
- Oil and Gas Field Development G&G Professionals
- Quantitative Interpreters

Geohazards considerations have grown in importance in upstream oil and gas, as the industry becomes increasingly aware of the potentially devastating impact they can have on the cost, schedule and complexity of every phase of field development. It is therefore critical that technologies and practices are continuously developed to ensure geohazards risks are timely and accurately identified, and effective measures are deployed to mitigate the risks involved.

Geohazards include submarine slides, shallow gas and dissociation of gas hydrates, mud volcanism, steep seafloor slopes, seismic activities, history of mass transport activity, seafloor expulsion, shallow faulting and waterflow. With activity in shallow water, shallow gas and unconsolidated sediments are major challenges. With more activity in deeper water, both pipeline stability as well as formation stability changes in the form of turbidite currents and quick sedimentation processes that may lead to overpressured formations and dissociation of hydrates will need to be part of the risk mitigation. Additionally, changes in the mechanical state of rocks can seriously affect drilling operations, completion infrastructures, and production performances which can result in unexpected cost and time overruns.

This workshop will present an advanced overview of surface facilities and subsurface-related geohazards. Particular attention will be paid to the improvements in geohazards identification, quantification of risk and mitigation, best practices, lessons learnt and technological advancements in handling geohazards, and potential impact on existing offshore structure stability in the current challenging environment. Special discussions will focus on geohazards-related wellbore stability and pore pressure predictions which serve as important components in well design and operations, and how geohazards can be taken into consideration to develop a simulation strategy to enhance production.

The benefits and value of geohazard planning, impact on facilities, subsidence, mapping, drilling, natural ground instability and movement such as creeping landslides, ground dissolution and collapsible ground will be discussed. In addition, the workshop will review and identify current and future technologies of both shallow and deepwater geohazards.

Session Highlights

- Geohazards – Is it only a well problem? To what degree does this affect the facilities?
- Identification and risk mitigation of geohazards
- Geomechanics management – Drilling and completions
- Innovation, best practices and lessons learnt – Identifying, handling and avoiding geohazards
- Geohazard characterisation and impact on field development plans
- Simulation and prediction of small-scale to worst-case scenarios of geohazard impacts
- Deepwater challenges – Pipeline routing and stability, turbidite currents and rapid sediment deposits
- Shallow water challenges – Shallow gas, shallow faulting, shallow water flow, hydrate dissociation, unconsolidated sediments and soft seabed
- Offshore geohazards and seabed mobility
- Formation compaction leading to slumping – Geohazards as part of reservoir management
- Planning of immediate and long-term effects – Discussion on facility planning and proposed pipeline planning within the project lifetime

www.spe.org/go/18WM02



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Why You Should Attend

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30+ expert-led technical discussion topics



20+ hours of knowledge sharing and technical discussions



10+ hours of peer-to-peer networking opportunities



Workshop Objectives

- Gain state-of-the-art overview of surface facilities and subsurface-related geohazards
- Review advances in geomechanical analyses
- Enhance knowledge base on oil and gas development related geohazards
- Advance understanding on hazard identification and mitigation strategies
- Examine latest techniques on operating offshore surface structures related geohazards
- Provide unique opportunities to interact with surface and subsurface professionals

Preliminary Workshop Schedule

MONDAY, 25 SEPTEMBER 2017

0900 – 0930 hrs **Welcome and Introductions**
 0930 – 1000 hrs **Keynote Address**
Emeliana Rice-Oxley, Vice President Exploration, Upstream, PETRONAS

1000 – 1030 hrs Group Photo/Coffee Break
 1030 – 1230 hrs **Session 1 – Identification and Risk Mitigation of Geohazards**
Session Managers: Sanjeev Rajput, Gaffney, Cline & Associates; Sachin Kumar Sharma, Schlumberger
 This session aims to provide a high-level foundation to cover the broader geohazards issues, risk mitigation and applications in the upstream oil and gas industry. Development and exploitation of hydrocarbon resources are exposed to many geohazards ranging from seafloor instability, diapirism, overpressured formations, small surficial slumps to enormous retrogressive slide events, etc. that can have a significant impact on the total field value and HSE footprint. For the successful delivery of projects, the timely identification and mitigation of key geohazard risks, its impact on CAPEX/OPEX estimate and HSE considerations are paramount. The deliberations in this session will emphasise broad issues, tools and workflows, and industry best practices available for the planning and execution of projects, estimating value of information and value at risk, scenario building, and hypothesis testing during the project gestation stage to maximise overall project value.

1230 – 1330 hrs Networking Lunch
 1330 – 1500 hrs **Session 2 – Shallow Water Geohazards**
Session Managers: Norhasliza Kasim, PETRONAS; Richard Spiteri, Sarawak Shell Berhad
 This session will highlight common and not-so-common issues that are often faced during drilling operations as well as engineering activities. Operational issues such as operating a jack-up rig within massive coral outcrops, identifying potential spudding issues like punch-through/rapid penetration, and managing gas

issues within a mature field will be discussed. The session will also showcase successful solutions that have been previously adopted. These include leveraging on new technologies such as the Autonomous Underwater Vehicles (AUV) and by doing a comprehensive geohazards analysis from the well surface location right down to the target.

1500 – 1630 hrs **Session 3 – Deepwater Hazards**
Session Managers: Vaughan Till, Murphy Oil; Nguyen Huu Nghi, PETRONAS
 Deepwater geohazards raise significant risks to deepwater drilling, field development and production activities in the oil and gas industry. Furthermore, deepwater geohazards give rise to unique challenges and differ from geohazards in shallow water. Typical deepwater geohazards include episodic turbidity currents, slope instability, mass transport activities (slides, slumps, debris flow), mud volcanoes, diapirs and fluid vents, shallow water flow, gas hydrates and geomechanical state. Every operation region/area faces different types of deepwater geohazards. Understanding deepwater geohazards and the identification, quantification of risk and choosing techniques to avoid and minimise incidents are crucial for deepwater operations. In recent years, there are a number of big discoveries in deepwater and ultra-deepwater. The increase in exploration/appraisal drilling and development plans will require further improvements in the quality of deepwater geohazard studies to ensure safe operations. This session will address current approaches, best practices, lessons learnt and advanced technologies to mitigate the risk of deepwater geohazards and to highlight their impact on deepwater environment activities.

1630 – 1700 hrs Coffee Break
 1700 – 1830 hrs **Session 4 – Wells Planning, Risk, Identification of Hazards, Construction and Post Drilling Review**
Session Managers: Sanjeev Gupta, Halliburton; M Nasir M Yunus, PETRONAS



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Well planning based on defined well objectives is an essential aspect of the well construction process. Aligning well objectives is necessary to manage drilling hazards and the associated mechanical risks critical to successful well execution. All drilling operations carry risks, therefore mitigating these is fundamental to the management of Non Productive Time (NPT). Lessons learnt are an important part of the business. Using lessons learnt to document all accidents, incidents and other risk-related situations, one can manage and improve the continued well construction cycle, better manage NPT and reduce the overall well cost per barrel.

1830 – 2030 hrs Poster Session/Networking Reception/Group Dinner

TUESDAY, 26 SEPTEMBER 2017

0900 – 1030 hrs **Session 5 – Geohazard Impact on Facilities**
Session Managers: Jamaluddin Takei, PETRONAS; Nursaadah Hassim, PETRONAS

This session will focus on the impact of geohazards to facilities such as platforms, wells and pipelines during operations and abandonment. The magnitude of the impact will differ depending on whether the facilities have been designed to cater for various hazards. The additional scope for geohazard management is certain to affect the project cost, and having the right technical judgments can potentially assist to avoid overdesigning these facilities. This session will share experiences from past and current projects dealing with geohazards impact; with an emphasis on changes to the standards and procedures and risk assessment mitigation plans.

1030 – 1100 hrs Coffee Break

1100 – 1230 hrs **Session 6 – Geomechanics to Mitigate Geohazards Throughout the Field Life Cycle**

Session Managers: Amitava Ghosh, Baker Hughes; Tobias M Müller, CSIRO Energy

Geomechanics plays an important role throughout the life cycle of any field. Understanding the stresses, rock deformations and failures is critical for decision-making in all stages from exploration, appraisal and development, production until abandonment. Geomechanical analyses aim to reduce expensive drilling hazards and increase reservoir performance without compromising on safety. This session will discuss strategies for hazard mitigation through different geomechanical analyses throughout the field life-cycle e.g. well planning, pore pressure prediction, wellbore stability, sand production, cap rock integrity,

fault-reactivity, compaction and subsidence, hydraulic fracturing, etc.

1230 – 1330 hrs Networking Lunch

1330 – 1500 hrs **Session 7 – Geohazards as Part of Reservoir Management**
Session Managers: Chong Zhou, PETRONAS; Khor Yin Yin, PETRONAS

This session will offer insights into geohazards as part of the Reservoir Management Programme (RMP). From an RMP standpoint, one needs to move towards thinking and planning of projects based on “What If” and “Range Thinking” to deal with large ranges of uncertainties that prevail in dynamic data. This session will explore how a particular surveillance activity or predefined contingent plans can help reduce commercially significant uncertainties. The session will focus on:

- Predefined decision trees and contingency plans in dealing with geohazards
- How data acquisition can add value for reservoir description
- Cost avoidance case studies in developing long-term development plans

1500 – 1530 hrs Coffee Break

1530 – 1700 hrs **Session 8 – Innovation, Best Practices and Lessons Learnt**
Session Managers: Ravi Kant Pathak, PETRONAS; Maike Willuweit, Roxar Software Solutions

This session aims to discuss current and emerging technologies and best practices in the field of geohazards management in the oil and gas industry; both subsurface and surface. The session will focus on the latest technology applications for geohazards identification which prevent costly well losses, inefficient rig time utilisation and mitigate risks during rig and vessel positioning, platform and vessel construction, pipe line routing and inspection, etc. The equally important complementary aspect of geohazards management is subsidence monitoring during field life. The session will cover developments in subsidence monitoring technologies ranging from surface to satellite measurements such as SAR interferometry (InSAR) that provides real time information for timely intervention for effective subsidence management. In these times of cost control, the session focus is furthermore aimed at discussing the added value of the overall geohazard handling. The deliberations in the session will emphasise lessons learnt and how we can efficiently incorporate these into current best practices to achieve better results.

1700 – 1730 hrs **Workshop Summary**

Poster Presentation

All participants are encouraged to prepare a poster for the Workshop. Presentations on both research and field experience are welcomed. Posters, including unconfirmed/partial results, are to be presented at an assigned time and are open for discussion. Posters will be on display for the entire Workshop period.

When preparing your poster:

- Avoid commercialism. No mention of trademarks/product name
- Poster size should be approximately 0.8m x 1.2m (W x H) or size A0 in portrait layout
- Identify topic by title, affiliation, address, and phone number
- Include a brief abstract that summarises the technology to be addressed
- Make the display as self-explanatory as possible
- Place the information in sequence: beginning with the main idea or problem, method used, results, etc. (Draw a plan keeping the size and number of illustrations in mind)
- Keep illustrations simple by using charts, graphs, drawings, and pictures to create interest and visually explain a point
- Use contrasting colours
- Use large print for narrative materials. (We suggest a minimum of 24 points or 3” high letters for the title)

Note that the Workshop Programme Committee will review all poster abstracts/materials prior to display, and reserves the right to refuse permission to display any poster considered to be commercial in nature.

If you are interested to participate, please email your proposed topic with a short abstract (between 200-300 words) to Lesley Chua at lchua@spe.org by **15 August 2017**.

The Society of Petroleum Engineers (SPE) is a not-for-profit organisation. Income from this event will be invested back into SPE to support many other Society programmes. When you attend an SPE event, you help provide even more opportunities for industry professionals to enhance their technical and professional competence. Scholarships, certification, the Distinguished Lecturer programmes, and SPE’s energy education programmes Energy4me are just a few examples of programmes that are supported by SPE.



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GENERAL INFORMATION

Documentation:

- Proceedings will not be published; therefore, formal papers and handouts are not expected from speakers.
- Work in progress, new ideas, and interesting projects are sought.
- Note-taking by attendees is encouraged. However, to ensure free and open discussions, no formal records will be kept.

Workshop Deliverables:

- The committee will prepare a full report containing highlights of the Workshop and the report will be circulated to all attendees.
- PowerPoint presentations will be posted online and provided to attendees after the Workshop. Provision of the materials by Discussion Leaders will signify their permission for SPE to do so.

Commercialism:

In keeping with the Workshop objectives and the SPE mission, excessive commercialism in posters or presentations is not permitted. Company logos must be limited to the title slide and used only to indicate the affiliation of the presenter.

Attendance Certificate:

All attendees will receive a Workshop attendance certificate. This certificate will be provided in exchange for a completed Attendee Survey Form.

Continuing Education Units:

This Workshop qualifies for SPE Continuing Education Units (CEU) at the rate of 0.1 CEU per hour of the Workshop.

Travel/Visa:

Attendees are advised to book their airline tickets early. All travellers must be in possession of passports valid for at least six (6) months with proof of onward passage. Contact your local travel agent for information on visa requirements.

Dress Code:

Business casual clothing is recommended. The Workshop atmosphere is informal.

Registration Fee:

- Registration fee ONLY includes all workshop sessions, coffee breaks and luncheons for the registrant. Accommodation is NOT included.
- SPE will provide details of recommended hotels upon receipt of your registration.

Registration Policy:

- Registration fee MUST be paid in advance for attending the Workshop.
- Full fixed fee is charged regardless of the length of time the registrant attends the Workshop, and cannot be prorated or reduced for anyone.

Attention Non-members Join Our Worldwide Membership!

Non-member full workshop attendees can join SPE at no additional cost.
Look for your exclusive offer by email shortly after the event.

SPONSORSHIP SUPPORT INFORMATION

Sponsorship support of the event helps offset the cost of producing workshops and allows SPE to keep the attendance price within reach of operation-level individuals, those who benefit most from these technical workshops.

Supporters benefit both directly and indirectly by having their names associated with a specific workshop. While SPE prohibits any type of commercialism within the workshop room itself, the Society recognises that supporting companies offer valuable information to attendees outside the technical sessions.

Sponsorship Categories

Sponsorship categories are offered on a first-come basis. Please contact SPE to enquire and verify the availability of categories. Existing supporters have the opportunity to renew the same level of support for annual workshops.

Sponsorship Benefits

In addition to onsite recognition, SPE will recognise sponsors on the SPE website and in all printed materials for the workshop. Based on the category selected, supporting companies also receive logo visibility on promotional workshop items.

For More Information

For a detailed list of available sponsorship opportunities, including benefits and pricing, contact Lesley Chua at lchua@spe.org.

