



Shaping the Future in a Changing Energy Landscape

Technical Themes – Call for Abstracts Now Open – Deadline: 22 April 2018

Theme 1: History of Petroleum E&P in Africa

This theme reflects on the journey of the Oil and Gas sector on the African continent. *Africa, Cradle of mankind*, is a continent blessed by an abundance of natural resources that has been explored for centuries. Authors are invited to tell the story of the Oil & Gas Industry in Africa and reflect on the impact it had on Africa's nations and peoples. Submissions are invited to tell the stories of the early exploration programs based solely on field work, to today's technology intensive program, the stories of the hard-earned discoveries and the serendipitous discoveries made on the way. Papers are also invited on the rise and changing fortunes of African NOC's as well as the International Oil Companies (IOC) active in Africa over recent times.

- ▶ History and Lessons From Early Explorers
- ▶ Giant Discoveries in Africa
- ▶ Gulf of Guinea
- ▶ East African Rift Basins
- ▶ Subsalt Plays within Southern and Central Africa
- ▶ Emergence of the Independent Operators
- ▶ Changing Roles of NOC's

Theme 2: Conventional Reservoirs

A thorough understanding of the subsurface is key to optimizing production, extending the reservoir or field life and maximizing the ultimate hydrocarbon recovery. Despite the increasing significance of production from unconventional reservoirs, the bulk of the world's oil supply will continue to be from conventional reservoirs. The aim of this theme therefore is to attract presentations, both oral and poster, related to reservoir characterization in siliciclastic, carbonates and mixed reservoirs. Industry and academia experts are invited to share their latest ideas, lessons learned, best practices, and insights on a wide range of disciplines related to the development of conventional reservoirs. Submitted abstracts are expected to cover but not limited to the following topics:

- ▶ Reservoir Characterization and Modeling
- ▶ Lithofacies, Diagenesis, and Reservoir Quality
- ▶ Reservoir Provenance Versus Presence/Quality
- ▶ Reservoir Compartmentalization
- ▶ Enhanced Reservoir Characterization in Well Placement and Geosteering
- ▶ Tertiary Carbonates (Modern & Ancient) Case Studies
- ▶ Microbial Carbonates
- ▶ Improved Recovery and Productivity from Carbonate Reservoirs
- ▶ Mixed Clastic/Carbonate Systems
- ▶ Integrated Reservoir Modeling
- ▶ Outcrops as Analogue
- ▶ Enhanced Oil recovery and Water flood optimization

Theme 3: Unconventional Resources

Unconventional resources such as, Coal bed methane, tight gas sandstone reservoirs, shale gas and oil, heavy oil are currently targeted for oil and gas exploration and development in many places around the world including Africa. The objective of this theme is to attract the industry and to shed light on the latest knowledge and insights related to key considerations when dealing with unconventional plays. Submitted abstracts are expected to cover but not limited to the following topics:

- ▶ Mapping Unconventional Reservoirs
- ▶ Regional Environmental Impact Considerations
- ▶ Shale Gas Case Histories
- ▶ Tight Gas Sandstone Reservoirs
- ▶ Basin centered gas
- ▶ Oil From Shales And Carbonate Mudstones
- ▶ Heavy Oil and Ultra-Heavy Oil
- ▶ Coal Bed Methane and Coal Seam Gas
- ▶ Gas Hydrates: The Future?
- ▶ Tar Sands
- ▶ Economics of Unconventional Resources
- ▶ The Sequence Stratigraphy of Resource Plays
- ▶ The Role of Geophysics in Unconventional Exploration and Development
- ▶ Rock Properties characterization

Theme 4: Exploration and Production in Mature Basins

Basins that are considered mature may still have substantial remaining potential. When larger integrated energy companies restructure their portfolios away from a mature area, this may create new opportunities for players with technical innovations to profitably exploit the remaining reserves and significantly increase recovery factors. More mature areas will already have access to infrastructure while the history of E&P shows that new data and information, new concepts and new interpretations may lead to discoveries of new plays and new prospects in such mature basins. Papers are invited on topics related to all aspects of E&P in mature basins.

- ▶ Exploration in Mature Basins
- ▶ Near-Field Exploration
- ▶ New Plays in Old Basins
- ▶ Sequence Stratigraphy, Global Sea Level Changes and Impact on Facies Architecture
- ▶ Rejuvenation of Sub-Economic Plays
- ▶ Reservoir Surveillance and Monitoring
- ▶ Well Testing and Production Logging
- ▶ Improved Recovery/Productivity in clastic and Carbonate Reservoirs
- ▶ EOR/IOR Global Case Studies
- ▶ EOR through CO₂ sequestration
- ▶ Finding Bypass Pays

Theme 5: New and Emerging Exploration Basins

There is a tendency across the industry to believe that the remaining potential for oil and gas exploration is diminishing with time. However, large discoveries made in recent years are showing that there is still a large potential for undiscovered hydrocarbon resources in frontier and emerging basins around the world. The success is intimately linked with the ability of the modern day explorationist to leverage on lessons learned, to use analogues, to exploit novel geological concepts and new technologies, but ultimately to keep an open mind and to “think out of the box” to move from the known to the unknown. The aim of this theme is to encourage participants to share their ideas, case histories and insights on any of the listed topics.

- ▶ Where Are The New Frontiers?
- ▶ The Applications of Analogues
- ▶ Subsalt Plays
- ▶ Exploration in Magmatic Basins
- ▶ The Anatomy of Play Openers: Case Studies
- ▶ From the Known to the Unknown
- ▶ Fractured Basements
- ▶ Impact of Non-Seismic Geophysical Methods

Theme 6: Deep-water Exploration and Production

Significant advances in seismic technology, stratigraphic analysis and modeling techniques have greatly improved our thinking and understanding of the deep-water environment. We continuously attempt a better appreciation of the evolutionary growth of deep-water systems with the primary objective to predict the development and distribution of reservoir and non-reservoir elements, their geometries, internal architecture, heterogeneity and quality. Unraveling the mysteries around the controls, distribution and development of deep-water depositional elements, however, still remains an exciting challenge. Academia and industry experts are encouraged to share their knowledge, experience, and insights on this subject through the submission of abstracts covering the below topics:

- ▶ Emerging Deep-water Exploration Provinces
- ▶ High Resolution Seismic and Sequence Stratigraphy
- ▶ Stratigraphic Traps
- ▶ Integrated Source-To-Sink Sedimentary Systems
- ▶ Physical and Numerical Modeling
- ▶ Paradigm Shifts from Classic Depositional Models
- ▶ Impact of Non-Seismic Geophysical Methods
- ▶ Advances in Seismic Acquisition and Processing in Deep-water
- ▶ Production Challenges in Deep-water

Theme 7: Petroleum Systems, Basin Modeling, and Risk

Basin modeling, together with developing a clear understanding of all the elements making up petroleum systems, is an essential process in determining prospectivity within a basin. Incorporating this understanding into consideration of risk, can greatly assist in ranking and prioritizing exploration targets, and aid in avoiding costly unsuccessful exploration activity. Submission of abstracts that cover any of the topics listed below, or any other relevant topic, is invited.

- ▶ Basin Evolution and Fill History
- ▶ Source rocks and Geochemistry
- ▶ Sniffer and Seabed Surveys
- ▶ Slick, Seep Detection and Interpretation
- ▶ Burial History and Diagenesis
- ▶ HC Generation and Migration History
- ▶ Lacustrine and Marine Source Rocks
- ▶ Salt-Related Petroleum Systems
- ▶ Pitfalls in Basin Modeling
- ▶ Uncertainty in Petroleum Systems Analysis
- ▶ Paleogeography and Gross Depositional Environment (GDE) Mapping
- ▶ Play Fairway and Prospect Analysis
- ▶ Volumetric assessment-Risk and Pitfalls
- ▶ Seal Types and Analysis

Theme 8: Tectonics, Basin, and Trap Formation

Whether extensional or contractional, transtensional or transpressional, the tectonic setting under which a sedimentary basin formed and filled controls everything from its stratigraphic distribution of reservoirs, seal and source rocks, to the size and style of its hydrocarbon traps. Successful exploration and production requires an understanding of how tectonics have controlled the genesis, evolution, modification and even destruction of a basin's plays and petroleum system elements. Hydrocarbon traps, in particular, are windows into past tectonic events. Such events have ranged from gentle and constructive, syn-depositional events creating large-scale traps with multiple reservoir-seal pairs, to active and (often) destructive, post-depositional events creating smaller-scale traps where faults and fractures are the controlling elements.

The aim of this theme is to bring together examples and insights demonstrating the relationships between tectonics (or a relative lack thereof!), basin evolution and hydrocarbon trap formation. Case histories from exploration and production business lines are welcome. Submitted abstracts are expected to cover but not limited to the following topics:

- ▶ The Role of Tectonics in Determining Plays, Their Distribution and Elements Within a Basin
- ▶ Trap Styles and Tectonics (exploration or production scales)
- ▶ Poly-Phase Tectonics Affecting Basin, Trap and/or Play Element (e.g. reservoir quality) Evolution
- ▶ Identifying Trapping Opportunities Through Basin-Scale analyses
- ▶ Traps, Seals, Fault, and Fracture Networks
- ▶ Folded Belts
- ▶ Fault Seal analysis and Risk Assessment
- ▶ Fractured Reservoirs
- ▶ Fractured Basement Plays
- ▶ Inversion-Related Traps
- ▶ Salt Tectonics and Related Traps
- ▶ Shale Tectonics
- ▶ Sub-Basalt Traps
- ▶ Syn-Rift Versus Post-Rift Petroleum Systems
- ▶ Intraplate/Cratonic Basins
- ▶ Plate Tectonics
- ▶ Seal mechanics and prediction

Theme 9: Integration of Geophysics with Geology

This theme will incorporate evolving geophysical technologies and workflows that integrate and enhance geological understanding of the subsurface at all stages in the petroleum life cycle. Over the years, there have been advancements and improvement in seismic and other geophysical technologies that have enhanced our ability to characterize the subsurface more confidently. Industry and academia experts are invited to showcase their knowledge, experience and insights on this subject through the submission of abstracts on the topics below:

- ▶ Advances in Seismic Acquisition and Imaging
- ▶ Advances in Electromagnetics
- ▶ Advances in Potential Field Methods
- ▶ Advanced Geophysical Methods for Reservoir Characterization
- ▶ Petrophysics, Borehole Geophysics, and Modeling
- ▶ Seismic Attributes in Reservoir Modeling
- ▶ Geophysical Methods for Carbonate Reservoirs
- ▶ Seismic Inversion, Full Waveform, Multi-Physics, and Beyond
- ▶ AVO, Seismic Attributes, and Spectral Decomposition
- ▶ Fluid, Pore Pressure, and Fracture Prediction using Geophysics
- ▶ Identifying and Mitigating Drilling Hazards
- ▶ Seismic Applications for Unconventional Development
- ▶ Passive and Microseismic
- ▶ Fracture Prediction Using Geophysics

Theme 10: Deriving Value from the Integration of Geosciences

Like any other industry, the E&P industry has, since its infancy undergone various remarkable changes and turning points in technology and thought processes. These turning points are facilitated by the integration of various disciplines with geology, when the established thought processes stopped giving the desired results. Major disciplines which work hand in hand with geology are physics, chemistry, biology and engineering. These disciplines are an integral part of the E&P industry. Geoscientists have not stopped here, every day new inventions are being introduced both in the field of exploration and in development. A great deal of engineering goes into the creation of tools for better visualization while similar efforts are being made for effective management of reservoirs, and in squeezing out the last drops of hydrocarbon in the most environmentally friendly and economical way.

With the advent of high resolution microscopy, reservoirs can be seen in greater detail, and the technique has helped in deciphering nano-fossils for age determination and correlation of rocks. The integration of geochemistry with geology has initiated a new field of basin modelling, assisting with the understanding and quantification of HC generation, expulsion and migration potential of source rocks. Under this theme papers are invited where integration of various branches of science has provided a fruitful explanation of geological processes and helped in exploration and development of HC resources for the betterment of mankind in an economical way.

- ▶ Sequence Stratigraphy – An Integrated Predictive Tool
- ▶ Geochemistry for Qualitative and Quantitative Estimation of HC
- ▶ Physics for Reservoir Characterization and Visualization of the Subsurface
- ▶ Petrophysics for Petroleum System Element Delineation
- ▶ Imaging Techniques for Nondestructive Analysis of Core and Cuttings
- ▶ Engineering to Explore Deep Sea Frontiers

Theme 11: The Increasing Importance of Gas

With new realities on the adoption of cleaner energies, oil price “competitiveness” and rising world energy consumption, the stage is being set for the emergence and/or dominant change to gas production in the industry. Contrary to popular belief about gas just being another fossil fuel with dangerous emission rates, natural gas has been proven to emit the least carbon dioxide (CO₂) and with the world still very far from a complete move away from fossil fuels, it is important that we begin to explore gas development as a cheaper and cleaner alternative. With deliberate advocacy, the industry and regulatory bodies must begin to critically consider workable fiscal and development options that the exploration of gas needs to operate within. In Africa alone, we have giant gas discoveries in offshore Mozambique, Egypt, Tanzania, Angola and Nigeria, and to meet the rising increase in demand, it is forecasted that supply will increase to around 70% by year 2040. This theme aims to include papers that will propose workable gas term models, ongoing discussions around locally suitable fiscal policies, possible impacts and current integration plans with the production of other heavier fossil fuels and renewable energies. Submissions should also highlight efficient systems for gas exploration through development to utilization.

- ▶ East African Gas
- ▶ West African Gas
- ▶ Monetization and Development of gas resources
- ▶ North Africa and Gas development
- ▶ Lessons from Other Regions
- ▶ Regulatory and Financial Incentives

For more information please contact:

Abeer Al Zubaidi • +971 4 372 4201 • azubaidi@aapg.org
Katie Steibelt • +971 4 372 4202 • ksteibelt@aapg.org

Theme 12: Innovation and Technology

Whilst the fundamental requirement of the petroleum geoscientist still remains the description and characterization of the subsurface and the recommendation to drill exploration, appraisal or development wells, the manner in which this task is accomplished is evolving at an increasing pace. Papers are invited on emerging technologies, innovative workflows and the impact thereof on the business and people of the E&P industry. Any submission that fits into this overarching theme in the Petroleum Geosciences will be considered. Topics for consideration by authors to contribute for this theme include.

- ▶ Innovations in Surface and Sub-Surface Mapping – Technologies and Workflows
- ▶ Automated Interpretation – Future Reality or Myth?
- ▶ Future Decision Making: The Role of Technology Assistance
- ▶ The Digital Oil/Gas Field
- ▶ Deep-water Engineering Challenges
- ▶ Big Data and the E&P Sector – Making Sense of it All
- ▶ Safety Monitoring
- ▶ Data Analytics
- ▶ The Role of Standards in Geoscience Innovation
- ▶ Role for Robotics in the geosciences

Theme 13: Business and Regulatory Environment

The international business of oil and gas exploration and production is subject to myriad global as well as country-specific factors and influences. The global economy, changing energy use trends, valuation methods and reporting, as well as local business operating environments all play a vital role in shaping the landscape. This theme encourages participants to share their expertise, ideas and insights on any of the listed or other relevant topics.

- ▶ Resources and Reserves Reporting
- ▶ Fiscal Regimes
- ▶ Decommissioning and Abandonment
- ▶ Business Value of Research
- ▶ Business Response to Changing Energy Mix
- ▶ Social Responsibility
- ▶ Local Business Environment

Theme 14: E&P and the Environment We Live In

The impact of oil and gas exploration and production activities on the environment has become an increasingly important topic. Current ease of access to information has raised issues such as the use of fossil fuels and pollution, climate change and protection of the environment to everyday household topics of discussion and conversation. The objective of this theme is to attract authors who will share their knowledge, experiences and insights on any of the listed topics or other relevant subjects.

- ▶ Carbon Capture and Sequestration
- ▶ Advances in Fracking Technologies
- ▶ Environmental Risk in Deep-water Drilling
- ▶ Coastal Management
- ▶ Exploration Activity and the Effect on Biosphere
- ▶ Managing Non-Technical Risks in Exploration
- ▶ Impact of E&P Activities on Deep and Shallow Aquifer
- ▶ Environmental Impact Assessment
- ▶ Waste Management
- ▶ Induced Seismicity

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