



**THE PETROLEUM GROUP**  
The Geological Society  
Burlington House - Piccadilly - London

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**Annual Report 2019**

## Executive Summary

This year the Petroleum Group Committee held five conferences; four at Burlington House and one at the Robert Gordon University in Aberdeen and co-badged the Biostratigraphy 21<sup>st</sup> Century Science workshop with the Micropalaeontology Society and the SEPM which was held at BGS Keyworth. We greatly thank the efforts of the conference convenors and Conference office staff who work hard with the logistics of these events allowing the convenors to focus on delivery of a technically excellent programme, following our ethos of being at the forefront of petroleum geoscience.

We also thank the conference sponsors for the continued financial support they generously provide to sustain the excellent conference venue at Burlington House, the dedicated staff of the Conference Office and administrative costs. Because of this support we were able to once again hold registration fees at levels of the previous year offering excellent value for delegates and significantly discounted student places. We are delighted that corporate and company sponsorship of individual events is increasing, a reflection we all hope of a stabilising industry.

Delegate attendance remains on historical trend with attendance still averaging over 100 across the events. As a result of positive delegate feedback, the Group seeks to maintain and grow our conference 'series'; from the existing 'regional' and 'ops geology' to include 'overpressure' and 'geomodelling'. Next year the Group will be delivering an extended programme of eight conferences and workshops on a broad range of appealing topics including hosting events in Durham and Aberdeen to ensure our continued reach beyond Burlington House. We will also participate in PETEX2020 contributing the Petroleum Geoscience Collaboration Showcase (PGCS). The Petroleum Group and PESGB have a long history of mutual support, and we continue to strive to maintain this constructive relationship in the coming years.

The Geological Society Careers Days in Nottingham and Edinburgh were again supported by members of the Petroleum Group with a dedicated stand and representatives to engage with students on career opportunities within the industry.

Four new members of the Committee were recruited to commence in 2019 with the Committee successfully retaining a balance between Academia, Majors, Independents and Service companies.

We approved a new expenses policy for committee members and convenors (ratified at January 2019 AGM) aligned with GSL policy. Our fourth Committee self-evaluation survey was issued in November 2019 and the outcomes reviewed in the November 2019 meeting.

## Transition to the Energy Group

The Petroleum Group came into existence 40 years ago. From its inception to today the Group has convened in the region of 285 meetings, produced 60 Geological Society Special Publications and 25 Petroleum Geoscience thematic sets. When considered in its entirety, we hope you will agree, this forms a significant contribution to our industry, the Society and our Nation. As a group, we strive to remain relevant to an ever-evolving industry, while staying

rooted to our values of offering high quality, leading edge petroleum geoscience on a diverse range of topics, which has been at the core of our objectives from the outset.

For some years now the Petroleum Group Committee has discussed the scope and purpose of the Group to ensure we are able to understand, adapt, and take a proactive role to position geoscience in the energy transition which has now fully established in the mainstream public debate and forms government policy. Fossil fuels currently contribute approximately 50% of the energy consumed in the UK. They will continue to be part of the energy mix over the coming decades as the global economy attempts to make the transition towards a carbon neutral environment, with the added challenge of growing global population and energy demand. Many forecasts present scenarios where demand for oil and other liquid fuels will continue to grow before gradually plateauing, while demand for natural gas grows. We believe there will be the need for petroleum geoscientists for decades to come. Renewable energy (wind, solar, geothermal, biomass & biofuels) is fast growing and should become the largest source of power by 2040 if we are to resolve this greatest of challenges. We recognise that the geosciences have a critical role to play in balancing this evolving energy economy, be that in the optimisation of existing fossil fuel resources, carbon capture and sequestration, radioactive waste disposal, geothermal energy or in the renewable energy sector.

We are proposing to widen our scope, to cover all geological sciences associated with the full cycle delivery of energy to society, and to become the Energy Group. We recognise the history of the Petroleum Group and the contributions it has made over the 40 years it has been in existence. We acknowledge that the Group is still and will remain the main forum for the Petroleum Geosciences within the Society.

Currently there is not a natural home within the Society for the non-hydrocarbon related energy geoscience, although the Petroleum Group has supported these subjects within our conference programme. Widening our scope will also bring new opportunities by facilitating the transference of skills across the energy economy, and to encourage and provide support for the next generation of geoscientists entering the energy sector.

We will be proposing a broadening of our constitution at the January 2020 Annual General Meeting and have already appointed a committee member with experience in geothermal energy. Moving forward we will ensure related sessions, workshops and conferences are included as part of our annual conference program.

This is a significant change for our Specialist Group but ultimately, we all have our part to play and much progress will be needed if we are to have any chance of solving the energy challenge.

## Conferences

### **Hydrocarbons in Space and Time**

**9-10 April 2019, The Geological Society, London**

The aim of this event was to provide an updated reflection on the heterogeneities in hydrocarbon distribution across the globe today. This was considered timely due to the rise of unconventional reservoirs in recent decades and due to the fact that few attempts to review this topic have been attempted since the 1990s. Over 2 days the conference addressed, what we know from our current economic and geological databases, the tools we use to predict hydrocarbon occurrence in the subsurface, known heterogeneities in source rock or reservoir systems that affect hydrocarbon distribution and the exploration potential for the rest of the 21st century. The event was attended by over 80 attendees with featured speakers including Henry Posamentier, Jo Garland, Ole J. Martinsen, Jonathan Craig and Jeroen Kenter. The convenors were grateful that this conference was also well-supported by industry sponsors that included BP, Equinor, ENI, Repsol, Shell, Chevron and ExxonMobil.

### **Celebrating the Life of Chris Cornford (1948-2017): Petroleum Systems Analysis, 'Science or Art'?**

**24-25 April 2019, The Geological Society, London**

This two-day conference was convened to celebrate the life of Chris Cornford and the technical programme was designed to reflect Chris's main interests in a distinguished career as a petroleum geochemist. Twenty-two verbal presentations and 15 poster presentations covered the full spectrum of petroleum systems analysis under session titles of 'Big Data', 'Use of data', 'State of the Art' and 'Thermal History Reconstruction' all headed by invited keynote presentations. This included a surprising description of a Precambrian petroleum system investigated by Chris and proved the key to understanding (the 'Rosetta Stone') of Witwatersrand gold mineralisation. In a new departure the poster presenters were given a 5-minute verbal slot in the main auditorium at the end of each morning session. The Conference was well-attended by a cross-section of academic and industry workers and lively discussion was had after each presentation and in the breaks. In keeping with Chris's life ethos early career geoscientists were encouraged and well represented among the presenters and attendees.

### **Petroleum Geology of Mexico and the Northern Caribbean**

**14-16 May 2019, The Geological Society, London**

The Mexican sector of the Gulf of Mexico is a prolific hydrocarbon province that is being opened for the first time to international investors with a series of competitive licencing round commencing in 2015. More widely within the Central American region, exploration activities are ongoing in several countries with both proven and frontier petroleum systems. The first wells drilled on the new Mexican licence resulted in significant exploration discoveries and appraisal success and provided the impetus for hosting a regional conference on the area in 2019.

The three day conference, attended by 115 delegates, brought together leading academic, consultant and industry players to discuss the current state of understanding in the area. The

committee was extremely pleased to note 57 of the delegates had travelled from outside the UK to attend the conference. The quality of the discussions and debate was enhanced by the sharing of proprietary data by key operators such as Equinor, PremierOil, BHP Billiton and the ongoing research activities of key academics and consultants based in the United States.

The 40 papers presented covered a broad range of petroleum geoscience disciplines including regional tectonics, reservoir distribution, petroleum systems, compressional and salt tectonics. Dedicated sessions on the Mexican Sureste and Campeche Basins and Northern Caribbean Basins were complimented by papers on Tampico Misantla, Yucatan Platform, Burgos Basin and the onshore basins to provide broad regional focus for the conference covering the full remit of geology and geography from plate, to basin, to reservoir to pore scale.

A high level of sponsorship was raised for the conference. This was in part used to provide support for Dr Elisa Fitz Dias an academic from Instituto de Geología, Universidad Nacional Autónoma de México to provide a keynote talk on the structure, timing and tectonics of the onshore Mexican Fold and Thrust belt. This excellent talk presented a model for the underplating of subducted tectonic plates which resulted in shortening, translation and uplift of the mini basins of the Mexican fold and thrust belt, the timing of which has been constrained by illite dating. The uplift and erosion of these mini basins has delivered clastic sediments into the Campeche and Sureste Basins in the Gulf of Mexico and combined with the tectonic shortening results in the formation of halokinetic traps in which the recent discoveries have been made.

Following the conference, a Special Publication has been approved by the Geological Society Publishing House which is currently in preparation.

### **Capturing Geoscience in Geomodels** **26-27 June 2019, Robert Gordon University, Aberdeen**

Over recent years the construction of 3D static and dynamic reservoir models has become increasingly complex. With the availability of extensive tools and technology it is important not to forget the objective of the modelling process. As we develop our hydrocarbon fields it is essential that 3D Static Models be built with fit-for-purpose geological models, honouring the geological, geophysical and petrophysical data that they are created from.

A wide variety of papers and some thought-provoking keynotes were supported by poster sessions and live software demonstrations during the networking breaks. We were reminded that technological advances should not replace good geological understanding and although full field modelling has become part and parcel of what we do, it's not necessarily what we need. Continued calls for more integration between disciplines remains on the agenda. The conference was very well attended by academia, operator and service providers alike.

## **Salt Tectonics: Understanding Rocks that Flow**

**29-31 October 2019, The Geological Society, London**

The complex behavioural and rheological characteristics of salt strongly influences the structural and stratigraphic evolution of a sedimentary basin. With many of the largest hydrocarbon provinces existing within salt-related basins, an understanding of the processes involved in salt tectonics has important scientific and economic implications for geological research and hydrocarbon exploration. Modern high-resolution 3D seismic data with improved imaging of salt structures, in combination with extensive field mapping studies utilising modern UAV surveying methods, and advanced physical and numerical modelling techniques, are continuously revolutionising the way we see salt tectonics and the role of salt structures in sedimentary basins, thrust belts and orogenes.

The well-attended conference attracted more than 100 industry and academic participants from across Europe and further overseas with an invigorating mix of specialists and a large contingent of young postgraduate and early career researchers presenting a wide range of innovative topics in salt tectonic research. The sessions ranged from regional focal areas on the North Sea, Europe and the Americas as well as specialist sessions on the rheology and geomechanical modelling of salt rocks and related halokinetic sedimentation processes.

Keynotes captured a wide range of talks from innovative field studies of remnant allochthonous salt in the fold-and-thrust belt of Haute Provence (Rod Graham, Imperial College London), salt tectonics in the Lusitanian Basin of the West Iberian margin (Berta Lopez-Mir, CASP) to the origin of the enigmatic Albian Gap of the Santos Basin offshore Brazil (Mark Rowan, Rowan Consulting Inc.) A particular highlight of the conference was the practical seismic workshop sponsored by TGS giving all participants an opportunity to study basin-scale seismic sections of the Western-Mediterranean Messinian Salt Basins leading to an afternoon of extensive discussions and debates with delegates sharing their ideas and questions. In particular, for many of the young researchers this workshop was the first opportunity to see salt structures in high-resolution basin-scale seismic data.

The conference concluded with a lively discussion titled 'Salt beyond Oil and Gas' around the future opportunities to apply knowledge gained for, but outside of, the petroleum industry. All participants agreed that the new research presented at the conference is clearly demonstrating that with each new research discovery, we learn about new exciting facets of salt tectonics and its important geological role guiding research into new fields for the coming decade.

All participants, senior professionals and young researchers alike agreed that salt tectonics will stay relevant and exciting for the years to come and everyone is already looking forward to discuss this in a future salt tectonics conference in the coming years.

### **Petroleum Group Dinner**

The 30<sup>th</sup> Annual Dinner was held at the Natural history Museum on 20th June this year; not in the usual location of the Hintz Hall, but beneath the awe-inspiring six meter model of the moon in the fine Jerwood Gallery. The change of location within the museum was planned as

part of a series of mitigation measures put in place by the Group to safeguard our guests against a direct protest by Extinction Rebellion and associated groups. Despite the protest at the entrance to the museum the dinner proceeded without any disturbance, and very positive feedback from dinners regarding how successful the dinner was. A total of 37 tables were sold which was an increase on the previous year, reflecting an upward trend of a stabilising industry.

A very successful raffle raised £1,150 for 'Rockwatch', the junior club of the Geologist's Association. This makes a total of over £52,000 raised for Rockwatch by attendees at the Dinner since collection began in 2006.

Each year the Petroleum Group is delighted to make awards in recognition of achievements and talent of individuals within the oil exploration sector. Chairman of the Petroleum Group, Lucy Williams, gave a speech on behalf of the committee and presented our Awards.

### **Petroleum Group Medal Award**

Kitty Hall is an exceptional geologist and company builder who has spent her career in oil exploration. As founding Chief Executive, she has built two different businesses to provide specialist technology and services to oil companies. She is a previous Chairman of the Petroleum Group, past member of the PESGB Council twice and has served on the boards of oil company Det Norske Oljeselskap (Aker BP) and seismic companies Seabird Exploration plc. and Polarcus ASA.

Kitty was first exposed to the oil industry while working for a survey company in a gap year before university; this included both fieldwork in northern Nigeria and becoming part of the very first effort to use computers in the processing of geophysical field data. She then earned a BSc in Geology from Leeds University, and went back into survey work, and at the age of 29 started a geophysical processing business with two partners. Nine years after her BSc she gained an MSc in Stratigraphy from Birkbeck College (University of London) through evening class study. Her career history shows her characteristic can do attitude and her amazing flexibility to take any opportunities that come her way.

Kitty's contribution to the professional societies is significant and her willingness to lead the way to change has meant she has consistently had significant impact. As Vice Chair of the PESGB she was the driving force behind introducing high profile media figures into the Stoneley Lecture, dramatically increasing its outreach bringing Geology to the public. As the first female chair of the Petroleum Group she systematically brought the group up to date working to modernise the constitution and personally interrogating the archives in order to understand the reach of the group and the level of involvement of the participant companies. Kitty has a lifelong enthusiasm for the commercialisation of new technology and for exploration across the world. Her career as an entrepreneur has allowed her to achieve both business success and to raise two daughters. She is also a trustee for several educational and 'homeless' charities.

Kitty's service to the industry is far reaching and those whom she has touched are privileged to benefit from her enthusiasm, her willingness to share her experience and genuine

motivation to support and develop others. Most recently this has included mentoring of early and mid-career women in the industry, speaking at events to encourage female participation in STEM career pathways, and sharing her story in order to encourage others to be bold and take opportunities.

### **Early Career Petroleum Geoscientist Award**

Scott Liebnitz is an outstanding geologist currently working for Shell in Aberdeen. Over time, Scott has grown in confidence and ability, learning from the projects he has worked and seeking out opportunities for development through volunteering for additional assignments, maximising coaching opportunities and being acutely aware of his technical competence gaps such that he always has a plan to fill them. Scott is not afraid to seize opportunities, however challenging. An example is his participation in a Wellsite Geology programme which saw him undertake 8 months of rotation in Russia.

Scott has also been Subsurface Lead for a project which involved aligning the London based Exploration team with Development in Aberdeen. Scott played a fundamental role at the interface of the two teams, steering the 30th license round successfully and confidently and ensuring that the development organization was fully aligned with the promise made by the exploration team.

Scott has a long-standing relationship with Imperial and Aberdeen Universities where he participates in a variety of initiatives supporting the MSc programmes. Scott has continually impressed his management team with the diversity of his achievements, the numerous stakeholders he has engaged, the quality of his work and the range of roles he has fulfilled.



## Petroleum Group Sponsored Publications

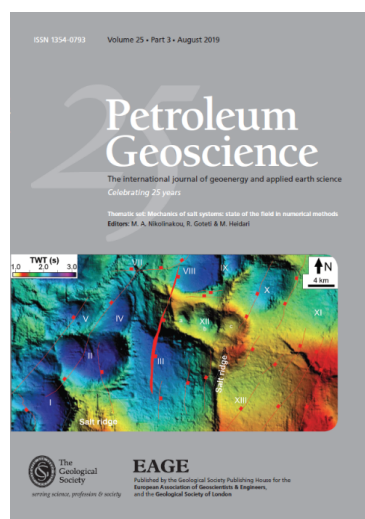
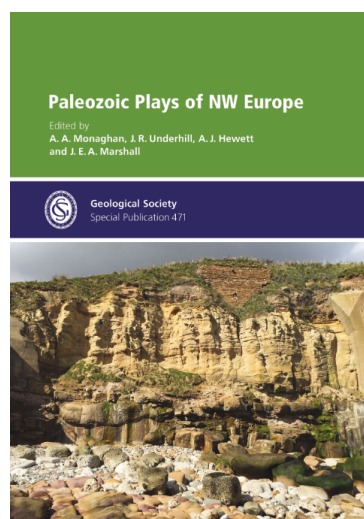
One Special Publication was released in 2019, and six were made available via online first

SP471: Palaeozoic Plays of Northwest Europe (printed)

SP484: Analytical Techniques,  
SP490: Fold and Thrust Belts,  
SP493: Sand Remobilisation & Injection,  
SP494: Cross Border Themes I: North Sea,  
SP495: Cross Border Themes II: Atlantic-Barents,  
SP496: Fault Seal Analysis

There was one PG-sponsored Petroleum Geoscience Thematic Volume:

- Vol.25, Part 3 Salt Systems



## In remembrance

## Harold Garnar Reading (1924–2019)

The Petroleum Group notes with sadness that Harold Reading passed away peacefully last week. His legacy in the world of sedimentology is immense, having inspired many generations of Oxford undergraduates and postgraduates alike, particularly in the sixties, seventies and eighties, in the field of facies analysis and the reconstruction of ancient sedimentary environments. During this period, he spearheaded extensive field-based programmes in Finnmark, northern Norway and the Cantabrian Mountains of northern Spain. The theme of this research, based on highly detailed investigations of clastic sediments, gradually evolved from three-dimensional reconstructions of sedimentary environments to the interplay between tectonics and sedimentation, a topic that was to become a lasting interest. Unlike in the academic world of today, Harold hardly ever appeared as a co-author on papers

produced by his graduate students, even though he had conceived the project in the first place and undertaken joint fieldwork. He saw ~40 students from 10 countries through to successful higher degrees. This spirit of generosity and selflessness characterized his career throughout and was duly recognized by his being awarded the Prestwich Medal from the Geological Society of London (in 1981) and the Twenhofel Medal from SEPM (Society for Sedimentary Geology: an American organization) in 1994, this latter award being the highest form of recognition offered by this society. In 1997 Harold was awarded the Grover E Murray Memorial Distinguished Educator Award by the American Association of Petroleum Geologists at the Denver Meeting. He received a further medal from the Geological Society, the Coke Medal, in 2001 as well as the Silver Medal of the Society's Petroleum Group in the same year.

He is remembered with great affection by his former students, many of whom he taught in his role as tutorial fellow in St Peter's College. His wife, Bobbie, having pre-deceased him, he is survived by his children John, Peter, Caroline and Simon and his 11 grandchildren.

A memorial service will be held in St. Peter's College chapel in early 2020.



Harold (right) with his former student Prof. Bruce Levell (centre) and Prof. John Underhill (left) at the Natural History Museum, Petroleum Group Dinner

### Looking forward

In 2020 the Group will be delivering a packed programme of eight conferences and workshops on a broad range of appealing topics including hosting events in Durham and Aberdeen to ensure our continued reach beyond Burlington House. The Committee continued to support the efforts of Jon Gluyas and Graham Goffey for the United Kingdom Oil and Gas Fields 50 Years Commemorative Atlas - a landmark memoir for the past five decades of the nation's petroleum exploration, development and production success story. The Group will be convening a book launch conference hosted simultaneously in London and Aberdeen.

We are currently forecasting the publication of numerous Special Publications in 2020 with ten projects progressing through the publishing process. There will also be one Petroleum Geoscience thematic set on naturally fractured reservoirs.

## Finally,

Several committee officers and members are stepping down and new members are joining. We take this opportunity to acknowledge the contribution of the members who are stepping down:

### **Retiring Officers**

Chair	Lucy Williams (Rockhopper Exploration)
Treasurer	John Argent (Sound Energy)
Communications	Maxim Kotenev (Sasol)
Publications	Ian Saikia (ExxonMobil)

### **Retiring Committee Members**

Peter Burgess (University of Liverpool)  
Richard Collier (University of Leeds)  
Matthew Jameson (Glencore)  
Owen Sutcliffe (Halliburton)  
Alun Williams (Equinor)

The Committee is extremely grateful for their contributions and dedication to the events and conference programme.

We are delighted that Caroline Gill (Shell) will take the role of Chair supported by Officers Jonathan Hull (Independent Consultant) the role of Treasurer, Kirstie Wright (Heriot Watt University) the role of Communications and Lauren Mayhew (Cairn Energy) role of Publications.

We also pleased to welcome eight new members to the committee:

### **Joining Committee Members**

Edward Prescott (Impact oil and gas)  
Ingrid Demaerschalk (Tullow)  
Ivan Fabuel-Perez (ExxonMobil)  
Alex Reid (Equinor)  
David MnNara (University of Liverpool)  
Douglas Watson (ExxonMobil)  
John Howell (University of Aberdeen)  
Tina Lohr (ERCE).

In 2020, the committee will be seeking additional representation from development discipline, having bought in a number of explorationists with the current new cohort.

### **John Argent**

**Petroleum Group Treasurer**



## **Petroleum Group Dinner**

### **Natural History Museum, South Kensington**



**Scott Liebnitz**  
**Early Career Petroleum**  
**Geoscientist Award**



**Kitty Hall**  
**Petroleum Group Medal**