

# EUROPEAN REGION NEWSLETTER

## Unlocking the Future

June 2012, Vol. 7

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### PRESIDENT'S MESSAGE



Dear Reader,

Nice to be in the cool and air conditioned office as I am just coming back from our trip with Jeremy Richardson, AAPG London office director to Turkey, very hot these days compare to cool and rainy British islands and some northern parts of Europe...

We went over to Istanbul and Ankara to talk about our new baby we plan to launch in this part of Europe – APPEX Regional Conference & Exhibition in early November time in Istanbul, Turkey. We spent some time in Ankara with Turkish Association of Petroleum Geologists - their President, Treasurer and Secretary as well as President and CEO of TPAO Mr. Mehmet Uysal to discuss details and organization of this event coming up. We all agreed on program, potential speakers, support and all logistics to be ready for you if you plan to go. So, join us in Istanbul on November 8-9 if you do not plan to be in London for annual APPEX in March.

We are working these days with AAPG London office to establish and renew all of the affiliated societies contacts and update our ER webpage. So if you read this newsletter and you feel you have to be presented and you represent the society contact London office, they will really welcome your input. This way you can increase your activities on our webpage, you can get an endorsement for your events or other benefits you may not know about.

Thinking back still about this past Spring and Annual AAPG meeting in Long Beach I can't help but report that the team from IFP took part in the final in Long Beach on 20<sup>th</sup> and 21<sup>st</sup> April but unfortunately was not placed. The winning team was the University of Louisiana at Lafayette, 2<sup>nd</sup> place went to the University of Khon Kaen, Thailand and the Colorado School of Mines took the 3<sup>rd</sup> place. This is the first year in the history of the competition that a European team was not placed in the final and yet I feel they deserve a great appreciation for their presentation and all work done with IBA program. Let's hope our European team will be back on stage next year again. We are already preparing our IBA regional competition in March 2013 and with new IBA Global Committee Chair Dave Cook, our ER Past President. We all wish him a lot of patience and luck for the next year with IBA.

On other note the approval of a Cooperation Memo of Understanding between the AAPG and the EAGE was granted by the AAPG on June 1st, 2012. In addition, a MOU for Joint Workshops between the two associations was also approved. The EAGE Board also approved the two MOUs on June 3rd and an official signing of these documents took place on Monday 04 June at the EAGE Annual Conference in Copenhagen.

The first workshop is proposed for late 2013 on Conjugate Margins of the South Atlantic and appropriate steering committee members are to be sourced. We hope to find that this move to cooperate between our associations is going to be both beneficial and useful for our industry in promoting science.

And last but not least? It looks like the same story but it is not. In fact the R&D article is somewhat special this time - it's about using oil exploration methods while mapping play fairways for geothermal energy in Ireland. The Country Focus is Hungary this time which might be our next „hot topic” as Budapest is one of the candidates for ICE in 2014. After Milan last year we will definitely welcome ICE back in our region whatever the winner is. And maybe if you want to enjoy Hungarian hospitality even this coming summer there is something for you – attend Budapest Education Week as being announced on our ER AAPG web page (<http://europe.aapg.org/2195>).

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**Instructions to authors**  
Editorial correspondence and material submitted for publication should be addressed to the Editor to [kwag@statoil.com](mailto:kwag@statoil.com). All materials should be sent by the 15<sup>th</sup> of the month before issue publication. All submissions are subject to editorial review and revision.

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Half	111 x 87.5	Not applicable	\$75
Full	222 x 175	Not applicable	\$100

There is other „hot” topic coming up for you to learn about these days if not hours really. On behalf of ER Council and following an official report from AAPG Headquarters, I am pleased to inform you of the results of the 2012 European Region election. Out of 1,146 eligible voters, 192 or 16.75% participated in the election by casting their vote either electronically or by paper ballot. Of those who voted, 173 or 15.10% voted via electronic ballot; 19 or 1.66% voted via paper ballot. Terms of the newly-elected officers begin July 1, 2012. And who are the winners?

**Secretary, 2012-2014: Helen Cromie, Maersk Oil, Denmark**

**European Region Member of the AAPG Advisory Council, 2012-2015: Andrea Moscardiello, University of Geneva, Switzerland.**

They both deserve our congratulations! Of course with ER Council we are all looking forward to work with them during the coming years. But maybe one more final comment of mine to this past election you may have as well when you see the numbers above. Just think about our full membership and active members in particular and how many of you showed an interest in „your representatives” to be elected. My hope for the next election coming in 2013, which also will have HoD delegates to be elected, is that we can present much higher numbers! This is all up to you to be seen and make our region more visible, successful and well represented.

Last time in March I was talking about the nature blooming and growing, maybe something we can relate to as well when thinking about our region. You have to be informed that Israel became a part of the European Region and Israel Geological Society was voted by HoD delegates in Long Beach to be affiliated AAPG – ׀׀ ׀׀ ׀׀. Please welcome our new members!

**Vlastimila Dvořáková**  
AAPG European Region President

## Play Fairway Analysis - Hidden Deep Geothermal Potential

*Nick O'Neill*

SLR Consulting Ireland

### INTRODUCTION

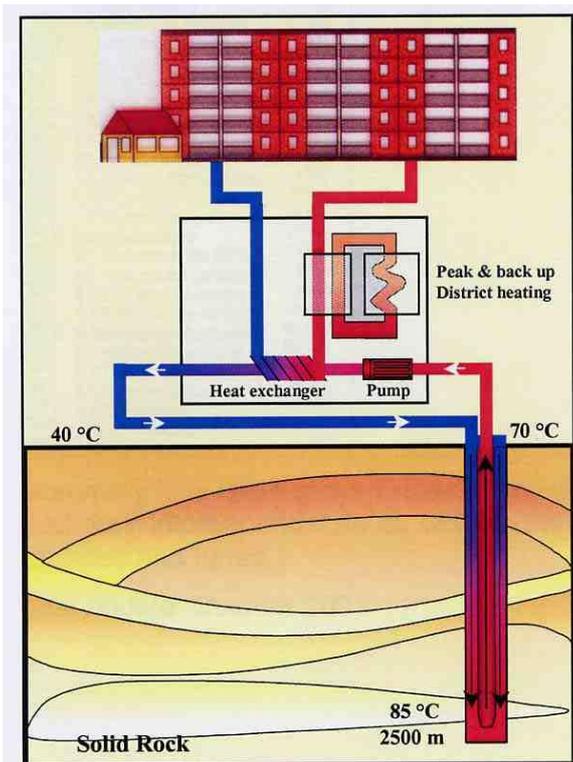
Leading environmental firm SLR Consulting has completed an analysis of the deep geothermal resources of the Republic of Ireland on behalf of the Sustainable Energy Authority of Ireland (SEAI). The Play Fairway Analysis assessed the geothermal exploration risk by analysing the various attributes of the subsurface of Ireland to a depth of 5,000 metres. The series of geothermal resource risk maps published by SEAI will advance the exploitation of geothermal energy in Ireland for district heating and to generate low carbon electricity. SLR Ireland Director Nick O'Neill said: "The results from the Play Fairway Analysis will encourage more exploration companies to get involved, increasing investment in exploration and the likelihood of success in the development of geothermal resources in Ireland."

Geothermal energy, the energy stored in the form of heat below the earth's surface, has been used for space heating and bathing since Roman times. More recently geothermal resources have been used for the supply of hot water for district heating schemes including for houses, agriculture, horticulture and industrial applications as well as to generate electricity. Geothermal-generated electricity was first produced at Larderello, Italy, in 1904 (Figure 1). Geothermal energy is a renewable resource that does not consume any fuel or produce significant emissions. Deep geothermal resources are usually found below 1,000m and are commonly subdivided into hydrothermal and Engineered Geothermal Systems (EGS).

Some locations, like Iceland, Indonesia, New Zealand, USA, Italy and the Philippines, have elevated geothermal heat flow with temperatures of over 150°C at 1 km because they are located at geological plate boundaries which are generally also active volcanic zones. Most locations, like Ireland, have rock temperatures of around 35°C at 1km.

In Europe hydrothermal resources are present in deep aquifers with enhanced temperatures where heat can be easily extracted due to the presence of water as a heat transfer medium. Doublet hydrothermal systems produce hot water from a production well and re-inject to the aquifer using an injection well. Single borehole hydrothermal systems can use a closed loop heat transfer system contained within a single borehole (Figure 2). For example, doublet hydrothermal systems near Paris (France) extract 73°C geothermal heat from depths between 1,800m and 3,500m for district heating (Figure 3). EGS systems are applied at depths in excess of 4,000m in areas where there are no natural aquifers. These systems are more experimental but have future potential for broad application in high temperature power generation.

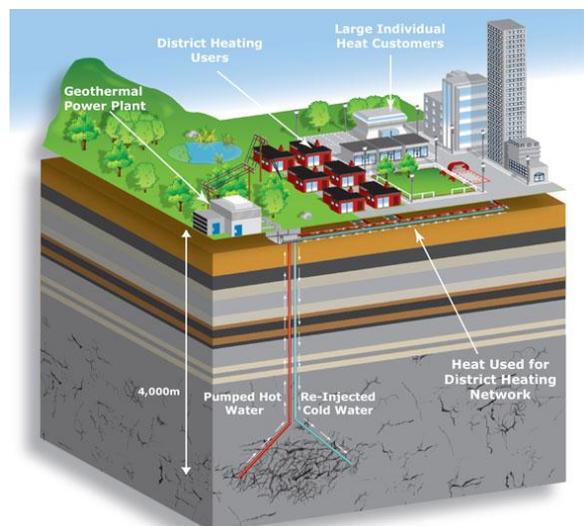
There are three basic technologies for generating electricity from geothermal energy. Dry steam power plants and flash steam power plants can use water from the geothermal production well at temperatures greater than 182°C. Binary cycle plants use geothermal water below 100°C to heat a 'working fluid' such as iso-pentane, which is vaporised and used to turn



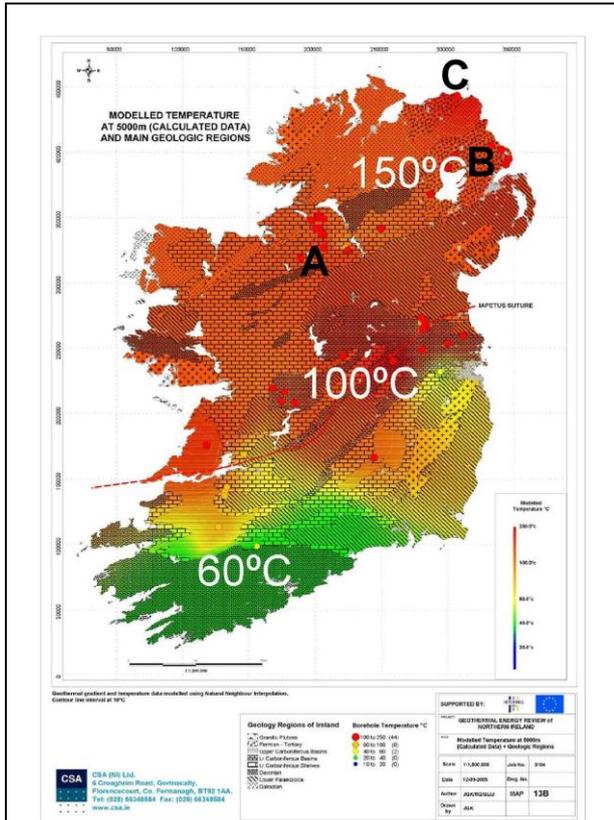
**Figure 2.** A 2.5 km deep geothermal well in Germany combined with a geothermal heat exchanger located on the surface can cool and heat a building by means of a closed water cycle. Water at 2.5kms depth measuring 80°C is recovered at 70° on surface and passed through a heat exchanger where 30° is extracted to heat and cool buildings. The technology makes it possible to reduce the carbon dioxide emission rate by over 130 tonnes per year. With a peak capacity of 450 kW, the heat exchanger is able to provide the heat and cooling supply for about 200 single-family houses (Source: Super C Project, RWTH Aachen, Germany 2010).



**Figure 1.** Larderello standard unit of 20MW dry steam electricity generating power plant – Italy (Source: SLR unpublished 2010)

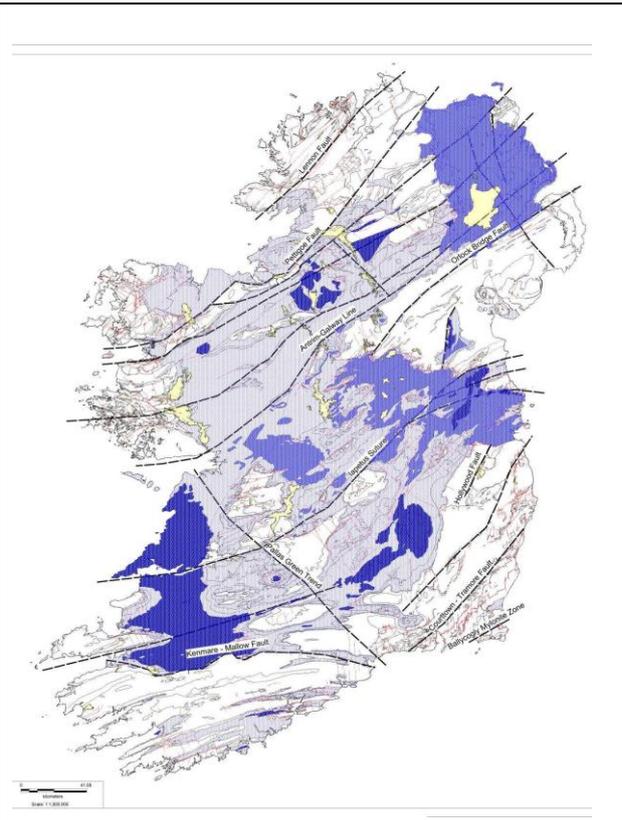


**Figure 3.** Diagram showing an open hydrothermal system that delivers electricity and district heating (Source: GT Energy 2010).



**Figure 4.** \*Regional Modelled Temperature at 5km Depth (from Goodman et al 2004) – \*note that locally these temperatures may be significantly different.

A = Lough Allen Basin; B = Larne - Lough Neagh Basin; C = Rathlin Basin



**Figure 5.** Geothermal exploration risk in the Carboniferous Basins of Ireland. The area in dark and medium blue indicate potential lower risk because of the presence of insulating shales and possible deep fractures providing transmissivity (Source SLR in prep.)

turbine/generator units and is the technology that will be needed to generate electricity from Ireland’s low enthalpy geothermal resource.

Geothermal power projects are characterised by high capital investment for exploration, drilling wells and installation of plant, but this is balanced by subsequent low operating costs because of the low marginal cost of fuel.

The recently published Play Fairway Analysis will reduce the cost of geothermal exploration drilling in Ireland by reducing the geological risk of finding geothermal resources.

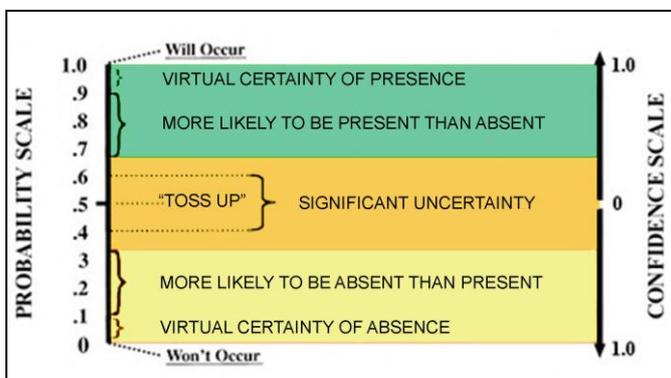
The 2,500m depth geothermal resource map of Ireland produced by SLR indicates potential for hydrothermal resources for direct use in district heating/cooling schemes using temperatures in the 65°C to 80°C range, assuming adequate aquifer capacity is present. The 5,000m depth geothermal resource map indicates potential for electricity generation in a number of

potential ‘hot-spots’ in the Lough Allen Basin, the Larne - Lough Neagh Basins and the Rathlin Basin. This potential is indicated by combining the heat resource map (Fig. 4) and the geothermal exploration risk map (Fig. 5).

Play Fairway Analysis (PFA) is an assessment of exploration risk on a geological basin scale used by the oil exploration industry. An oil exploration PFA involves the integration of key geoscience information (log, core, seismic, geochemical, test data, etc.) into a model of the history of the evolution of sedimentary basins over geological time and the critical, qualitative, and three dimensional examination through analytical techniques of the petroleum potential of these basins.

This study (click [here](#) for more details) was a first attempt to apply this technique to the analysis of the geothermal potential of Ireland. The geoscience data base includes borehole data deeper than 500m, regional gravity data; modelled rock temperature at 5,000m and 2,500m; modelled temperature of warm springs; aeromagnetic data; onshore seismic lines; significant geological basins; regional structures; and granite outcrop and interpreted buried granite. This key geoscience information is integrated into geographic information system GIS layers in MapInfo.

The PFA is carried out at the sedimentary basin scale and examines the full sequence of rocks in each basin. For each basin the qualitative risk of finding a heat source, an insulator and a reservoir is assessed as low, medium or high. Figure 6 shows the colour codes for the different levels of risk used on the maps. The green areas on the maps are sedimentary basins where the parameter (e.g. heat source) is more likely to be present than absent. The light orange areas on the maps are sedimentary basins where there is significant uncertainty that the parameter (e.g. reservoir) is present. The light yellow areas on the maps are sedimentary basins where the parameter (e.g. insulator) is more likely to be absent than present. On



**Figure 6.** Probability scales & risk colour codes used in this PFA



## Hungary

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### INTRODUCTION

Hungary has been a petroleum producer since the early 20th century. Situated in the Neogene Pannonian basin, a prolific hydrocarbon province of Central Europe, the country offers various petroleum systems with several well established and some emerging play types. Hungary has seen thousands of wells drilled producing approximately 2.3 billion barrels of oil and 13 TCF of gas from hundreds of fields over the last 75 years. The creaming curve shows a characteristic temporal pattern with the majority of fields discovered in the middle of the last century and only a few new fields identified in recent years. Whereas Hungary has an increasing dependency on petroleum imports, the annual oil and gas production has been decreasing steadily, now at 5-6 MMBO and 90-100 BCF respectively, supplying around 10 to 20% of its consumption.

With one of the highest shares of natural gas in its energy mix within the EU, and the strong dependence on its main supplier, Russia, domestic hydrocarbon production will have to play an important role in securing Hungary's energy needs for the next decades. To achieve that goal, introduction of new exploration ideas and technologies are of key importance. In addition, a predictable and stable legal and financial framework for licensing is also essential to promote substantial investment required for E&P activities. Given the excellent infrastructure in place and highly favourable market conditions (geographic location, oil-linked gas price), the country has a lot to offer for future exploration. This contribution gives a high-level overview on the well-known and emerging petroleum systems in Hungary followed by a summary on exploration status.

### PETROLEUM SYSTEMS

Details of the petroleum geology in Hungary, located in the heart of the Pannonian basin, have been outlined in several publications (e.g., Dank,

1988; Horváth and Tari, 1999; Dolton, 2006; Tari and Horváth, 2006; Badics and Vető, 2011). Well-known petroleum systems are linked to three main tectonostratigraphic units often with overlapping elements and events (Figure 1). Related fields are scattered around the country testifying for a rather complex Tertiary structural development juxtaposing tectonic units of different geological evolution.

**Late Tertiary Pannonian basin system.** By far the most and largest fields have been discovered in the Neogene to Quaternary sedimentary fill of the Pannonian basin. At a large scale, these fields are generally located at the periphery of major depocenters suggesting a strong link between generation and accumulation of hydrocarbons (Figure 2). This young and still active petroleum system is primarily sourced by Miocene dark shales (Tekeres, Szilágy, Budafa, Endrőd Fms.) with a wide range of geochemical character from marine to lacustrine in origin, i.e. oil and gas-prone (type II and III, resp.) kerogens, or often the mixture of those. Thermogenic oil and gas generation has been taking place below the depth of 2,500 m for the last 5-10 Ma. Associated overpressure or buoyancy forces have expelled hydrocarbons vertically along fractures and fault zones to higher stratigraphic levels. Long-distance lateral migration alongside major unconformities or within fractured basement units also took place. Production is mostly coming from Middle to Upper Miocene reservoirs situated in various structural positions such as drape or compactional anticlines over basement highs, folding of the strata due to inversion episodes, tilted fault blocks, growth faults, roll-over features and flower structures at wrench fault zones. Stratigraphic trapping, often structurally controlled, took advantage of shale- and pinch-outs in turbiditic, delta plain and fluvial sand bodies, patch reefs and algal limestones, volcanic tuffs; or at regional unconformities between main tectonostratigraphic units.

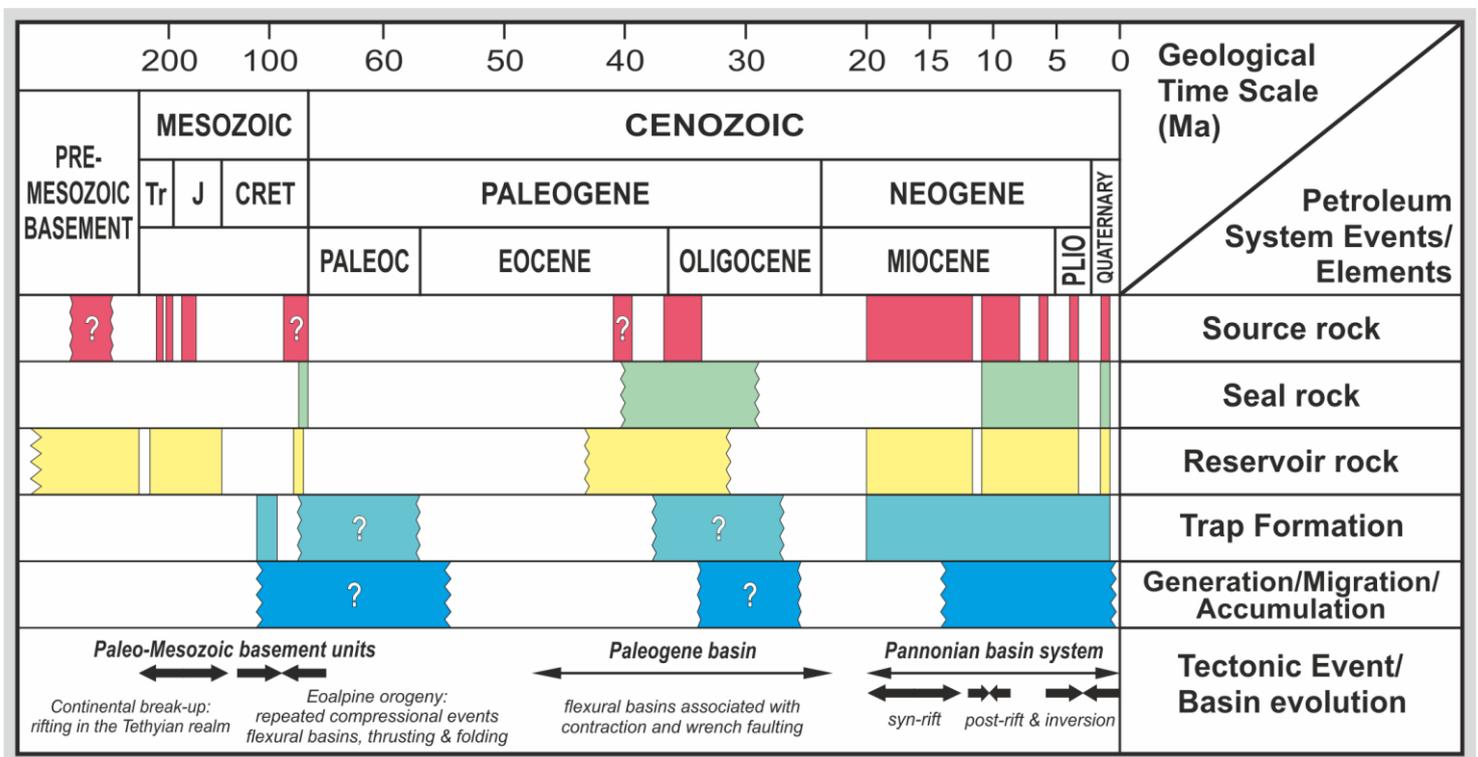
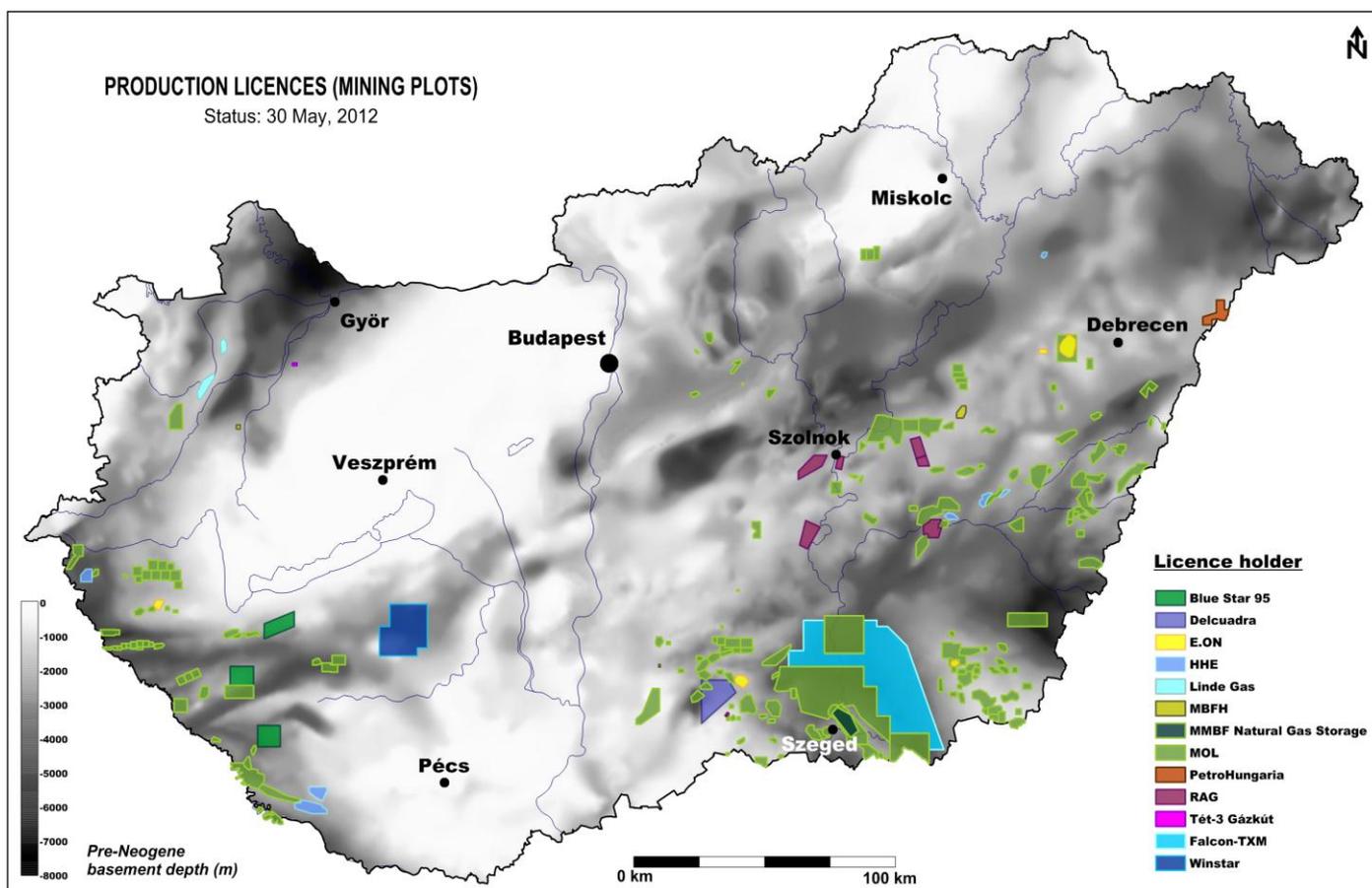


Figure 1 Principal petroleum system events and elements in the Hungarian part of the Pannonian basin compiled after Dolton (2006), Tari & Horváth (2006), Badics & Vető (2011).



**Figure 2** Location of producing fields in Hungary as reflected in the areal distribution of production licences ("mining plots") overlain on the depth map of pre-Neogene basement. Status: 30 May, 2012. Source: Hungarian Office for Mining and Geology (MBFH).

Historically, most discoveries represent a relatively simple exploration concept focusing on the geophysical imaging and drilling of a variety of structural highs and their immediate flanks (e.g., Algyó field). Thus, given the high level of drilling activity for decades, it is fair to say that most of the largest, structurally controlled, conventional accumulations have been found in the Neogene basin fill. However, related satellite fields and other underexplored or overlooked conventional play types are also of commercial importance. In addition, unconventional plays within the Late Tertiary petroleum system offer a remarkable potential with reported reserve estimates comparable to volumes produced to date.

**Paleogene basin.** In Northern Hungary, Lower Oligocene shaly sequences (Tard and Kiscell Clays) have been identified as good source rocks for both oil and gas. Geochem data and basin modeling suggest that hydrocarbon generation took place during the last 10 Ma, i.e. during the intensive thermal event associated with Pannonian extension and related volcanic activity. Fields are limited in size and confined primarily to Oligocene sands interfingering with shales often providing effective self-sealing of the strata. Underlying fractured basement rocks and overlying Miocene carbonates also contain hydrocarbons. Traps are mainly structurally controlled as fault compartments or tilted blocks. Parallel to the main tectonic lineaments in Hungary lies the NE-SW trending Szolnok Paleogene Flysch zone, a strongly deformed unit offering source as well as reservoir rocks with a variety of lithology. This gas-prone system contains relatively modest size accumulations and is also feeding the overlying Neogene strata. Mixture of thermogenic gases from different sources and gases of biogenic origin makes up a good example of interacting hydrocarbon systems (e.g., Hajdúszoboszló field).

**Pre-Tertiary basement units.** Abundant Mesozoic units, and possibly Paleozoic sequences, provide excellent source rocks at several stratigraphic levels including Upper Triassic organic marls, and Lower Jurassic and Upper

Cretaceous (Senonian) dark shales. These rocks are sourcing reservoirs with a wide spectrum of age and lithology like Triassic carbonates, Senonian reef limestones and Miocene siliciclastic sequences (e.g., Nagylengyel field). Exact timing of events in this petroleum system is difficult to assess due to complex basin evolution and deformation history. Tentatively, the peak of hydrocarbon generation and subsequent migration and trapping took place relatively late, during late Neogene times. Interaction between petroleum systems also occurred top to bottom when hydrocarbons generated from Miocene source rocks were squeezed into fractured and weathered basement units. In fact, sizeable fields in Hungary often produce from multiple pay zones involving different basement units as well as stacked sandstones within the Neogene basin fill.

## UNDEREXPLORED AND EMERGING PLAYS

This section focuses on targets that may get special attention in future exploration efforts including known yet underexplored play types with proven potential and production, and the emerging unconventional plays that have come into focus in recent years.

**Biogenic gas.** Biogenic production of isotopically light methane is recognized as a pervasive process within the Late Neogene through Quaternary sediments in Hungary. Paleoenvironments of this alluvial system with immature, organic rich floodplain sediments (organic rich shales, lignites, coal seams) and interfingering clean sand bodies (pointbars, levee systems), complemented by favourable thermal regime, provide appropriate conditions for the generation and trapping of dry gas. Accumulations occur mostly above depth of 2,000 m (e.g., Hajdúszoboszló, Tatarüllés-Kunmadaras fields) mostly in uplifting areas where related pressure drop increases free gas content within pay zones. It is commonly associated with small to moderate sized fields but commerciality is boosted by the shallow depth, typically 500-1,500 m, of reservoirs. Systematic

exploration of this play is in its infancy although required methodology, AVO analysis of 3D seismics, is relatively straightforward.

**Sub-thrust and fractured basement play.** Potential traps associated with the underexplored Alpine (mostly Cretaceous) thrust and fold belt beneath the Cenozoic basin fill offer important exploration targets in the basement of the Pannonian basin. These various, typically fractured Precambrian to Mesozoic units sometimes represent prolific producers discovered in relatively simple structural setting, i.e. on the flanks of basement highs adjacent to deep Neogene troughs and depocentres. Advancements in seismic imaging, however, now allow a systematic approach targeting more complex geometries beneath the basin floor, often within allochthonous imbricates at or below major thrusts and detachment horizons of Eoalpine (Cretaceous) origin. Various source rocks within the Mesozoic sequence may charge these structures making up an exciting play of great potential. The considerable exploration risk inherently associated with this pre-Tertiary petroleum system can be mitigated by using highly sophisticated seismic technologies and modern subsurface interpretation techniques.

**Unconventional resources.** In Hungary, Falcon-TXM Oil and Gas Ltd. has been pioneering the exploration of unconventional resources in its Makó trough licence (Figure 3). After completing a 1,100 km<sup>2</sup> 3D seismic campaign and a drilling program with 7 deep (>3,500 m) wells, an active petroleum system with pervasive hydrocarbon saturation has been identified. This involves shale oil and gas play at the bottom of the basin within the organic rich Endrőd shales, and a tight gas play in the overlying Szolnok and Algyő turbiditic sand bodies. Falcon-TXM has reported some 40 TCF gas resources and 100 MMB oil resources from their production licence, while producibility and commercial assessment of this play is in progress. MOL, Hungary's national oil company, is running similar projects in the Derecske and Makó troughs targeting the lower sections of the Neogene basin fill. Delcuadra, a consortium of Delta Hydrocarbons, Cuadrilla Resources and RAG, has successfully fraced and produced tight Miocene sequences in the Kiskunhalas trough. WildHorse Energy has been working on an underground coal gasification (UCG) pilot using their CBM exploration licence in the

Mecsek Hills, S Hungary. Near the borders of Hungary, several other unconventional operations have been taking place. Ascent's Petisovci project in Slovenia, INA/MOL's pilot in the Drava trough in Croatia and NIS's Majdan project in Serbia all target Lower to Upper Miocene high TOC shales and adjoining tight sediments. Further to the west, OMV is considering to drill two deep pilot wells to test the potential of the Jurassic Mikulov shale in the Vienna basin. Inferences abroad will have a major impact on the evaluation of unconventional resources in the Hungarian part of the Pannonian basin.

Critical point in all of these unconventional projects is the commercial viability of establishing long-term production. High investment profile is typical for developing these HT/HP resources with stimulation (fracking) seen as a prerequisite, recognized and supported by the Hungarian government via a favourable royalty scheme. Like with other major European unconventional programs, it remains to be seen how the industry in Hungary can make these unconventional plays economically feasible.

## EXPLORATION STATUS

The exploration arena in Hungary is fairly calm with only <20 wells drilled annually, some of them for appraisal and development purposes. MOL, Hungarian Horizon Energy (Aspect Energy), RAG, Pelsolaj (Ascent Resources) and Wildhorse Energy are the primary players holding licences often in partnership with a handful of other companies such as DualEX Energy, Geomega, JXN Oil and Gas, NIS, PetroHungaria and Swede Resources. Since shutting down the open-door policy in October 2010, areas covered by exploration permits in Hungary has been and will be shrinking considerably and at a rapid pace (Figure 4). In spite of the sustained interest from investors, this is an undesirable process hampering exploration activity. Therefore, the Hungarian government is to introduce a new permitting system in the near future. E&P companies will be invited to a licensing round for various concessions blocks in a transparent, open bid round procedure. Locations of the first three concession blocks have been

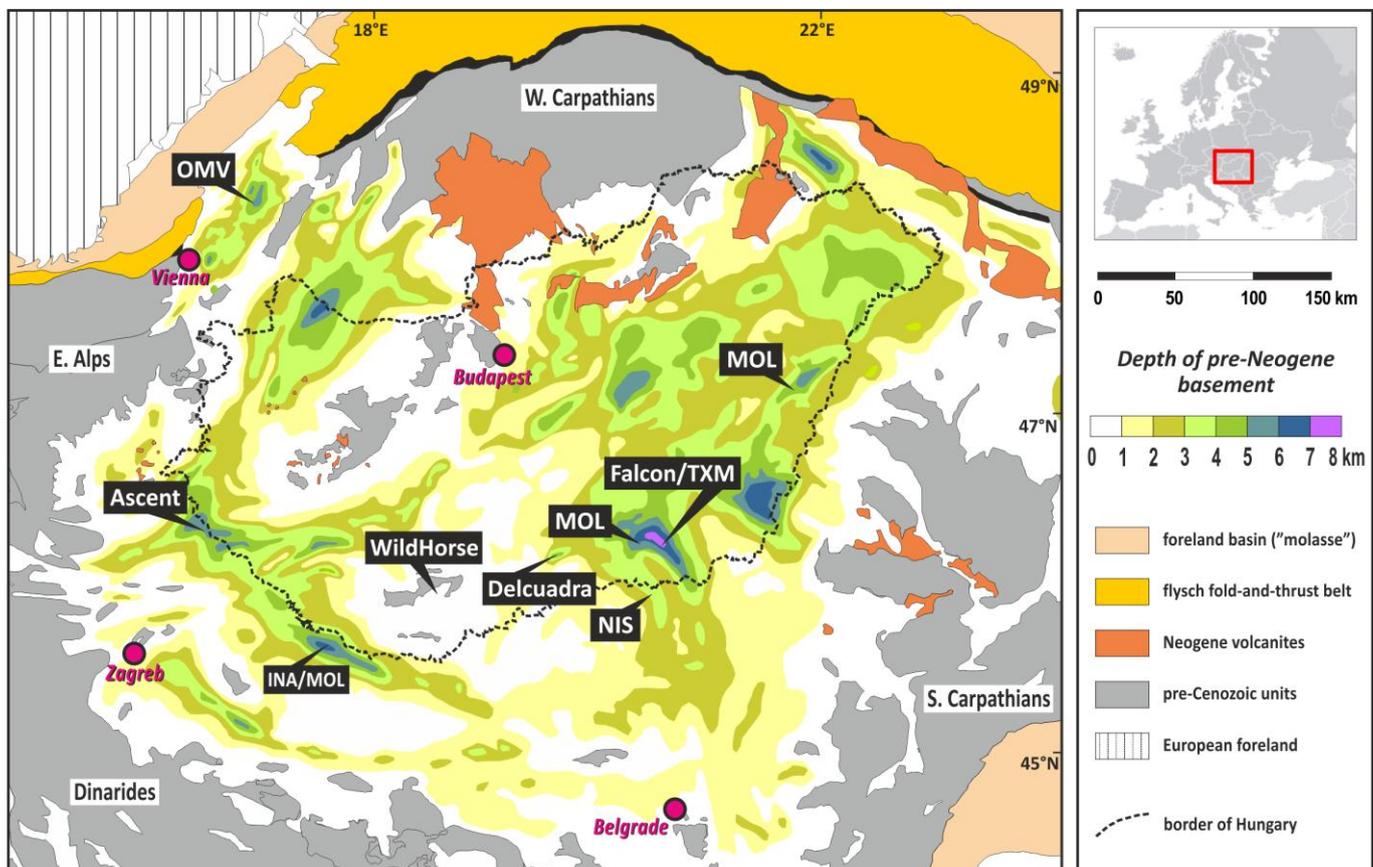


Figure 3 Activity map of unconventional exploration in Hungary and immediate vicinity overlain on the depth of pre-Neogene basement in the Pannonian region.

published reflecting genuine intentions to grant prospective areas with decent hydrocarbon potential.

In conclusion, Hungary offers excellent opportunities for the exploration community. While being a mature petroleum province, the country holds considerable reserves in its known petroleum systems. In addition, several underexplored and emerging play types present challenging yet very exciting targets for a wide spectrum of investors from small-cap companies to international majors. ■

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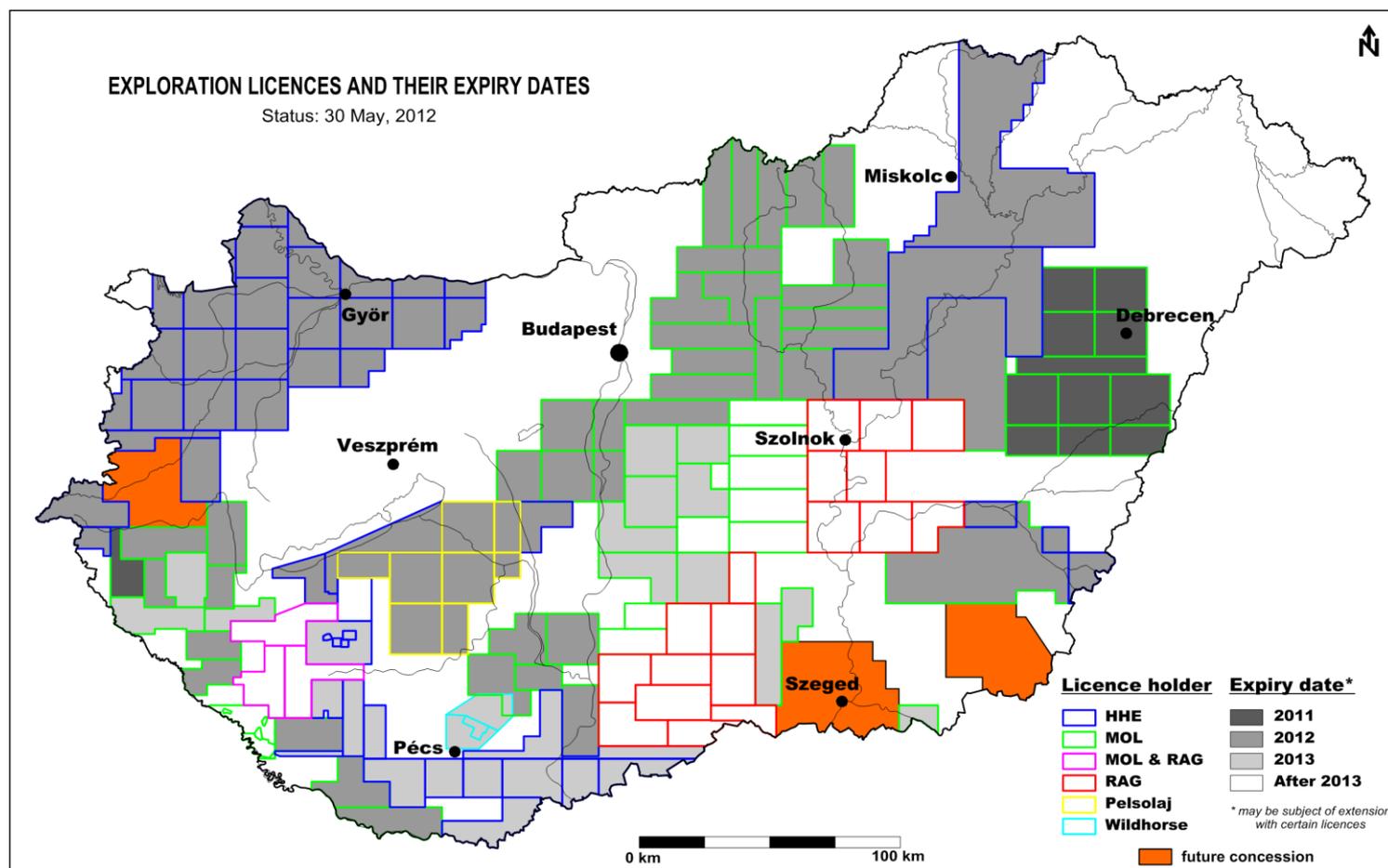


Figure 4 Exploration licences and their expiry date in annual breakdown, and the location of 3 future concession blocks. Status: 30 May, 2012. Source: Hungarian Office for Mining and Geology (MBFH).

## Budapest Education Week 27th – 31st August 2012



The Budapest Education week offers 4 day lectures and 1 day field trip to young professionals and students in integrated G&G studies and their application in prospect evaluation. Improve your skills and join us in Budapest!

### Programme at a glance:

#### Day 1 – Monday 27th August 2012

09:00 – 17:00, **Basin Analysis: Basins, Petroleum Systems and Plays**, Balász Badics, Statoil, Norway

#### Day 2 – Tuesday 28th August 2012

09:00 – 12:30, **Petroleum Systems Analysis in the Alpine Foreland Basin**, Reinhard Sachsenhofer, Leoben University, Austria

13:30 – 17:00, **Structural Geology: application to analysis of sedimentary basin**, Professor Laszlo Fodor, Eötvös University, Hungary

#### Day 3 – Wednesday 29th August 2012

09:00 – 12:30, **Prospect Evaluation**, Peter Kukla, Aachen University, Germany

13:30 – 17:00, **Fundamentals of Petroleum Economics**, Dorottya Nagy, Standard Chartered Bank, UK

#### Day 4 – Thursday 30th August 2012

08:00 – 20:00, **1 Day Field Trip "Field Observations – Providing the Missing Link"**

#### Day 5 – Friday 31st August 2012

09:00 – 17:00, **Basic Petroleum Engineering**, Drago Domitrovic, INA Croatia

Venue: Danubius Hotel Flamenco, 3-7. Tas vezér utca, 1113 Budapest, Hungary

**Sponsorship opportunities are available for this event.** For details on sponsoring, please contact Fionn Devine on +44 207 434 1399 or [fdevine@aapg.org](mailto:fdevine@aapg.org).

Further information will be posted soon so please keep visiting this page for updates.

This entry was posted on Thursday, June 14th, 2012 at 2:27 pm and is filed under [Information](#). You can follow any responses to this entry through the [RSS 2.0](#) feed. ■

### UPCOMING EVENTS

#### August, 2012

Aug 27 - Aug 31  
Budapest Education Week

#### September, 2012

Sep 16 - Sep 22  
Seismo 2012 Conference

#### October, 2012

Oct 3 - Oct 5  
AAPG Europe International  
Conference and Exhibition

#### November, 2012

Nov 8 - Nov 9  
APPEX Regional 2012 in  
Istanbul

#### January, 2013

Jan 14 - Jan 16  
Carbon Sequestration  
Conference

#### March, 2013

Mar 4 - Mar 8  
APPEX 2013 - London

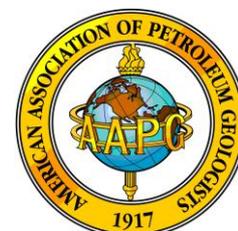
#### April, 2013

Apr 8 - Apr 10  
European Regional Conference  
and Exhibition

## HOW TO RECEIVE THE AAPG-ER NEWSLETTER

AAPG members are automatically associated with the Region that corresponds with their mailing address. For example, Rio de Janeiro mailing address will be assigned for purposes of AAPG mailings, etc. with the Latin American Region. To change this designation, a member need only contact AAPG Headquarters by email and request there the Region assignment on their membership record be changed.

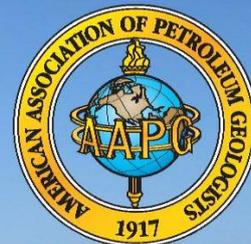
Requests for this change are directed to Linda Burris at [lburris@aapg.org](mailto:lburris@aapg.org). ■



**EUROPEAN  
REGION**

AAPG European Regional Conference  
**Exploring the Mediterranean:  
 New Concepts in an Ancient Seaway**

8-10 April 2013 | Princesa Sofia, Barcelona



**CALL FOR ABSTRACTS**

**Call for abstracts deadline 7th September 2012**

**Exploring The Mediterranean: New Concepts In An Ancient Seaway  
 The "sea in the middle of the earth" - The Mediterranean.**

A rich human history of civilisation, trade and war is deeply rooted in the complex ancient geology that underlies the Mediterranean region, having evolved through the convergence of the European and African plates and the closure of the Tethys Ocean. In more recent times, oil and gas exploration has found success in the diversity of resulting extensional and compressional tectonic regimes, with a procession of new plays being identified over decades of industry and academic activity. Despite intensive exploration, the region continues to deliver tangible success through its rich diversity of play types, as recent discoveries in the Eastern Mediterranean have testified. This significant conference will assemble some of the best current thinking in Mediterranean petroleum geology, from the tectonics that underpin the basin, to the Messinian salinity event and its impact on exploration. From North Africa to the Adriatic, this conference will bring together the multiple cultures that surround this diverse region to reflect on a common geological framework and the petroleum systems that transcend political boundaries. With its position to the west of 2.5 million sq. km of water, Barcelona will form the ideal backdrop to this timely event.

**Themes will include:**

Geotectonic evolution of the Mediterranean. The impact of the Messinian Salinity event in exploration. Carbonate plays in the Mediterranean.

Petroleum systems and source rocks.

New exploration in the Eastern Mediterranean. The Nile Delta revisited. Recent exploration along the North African coast. The Western Mediterranean and the Alboran Sea in focus.

Prospectivity and new plays in the Adriatic Basin.

**Call for abstracts deadline 7th September 2012**

**Required format of abstracts:**

Besides the title and author list, include contact information for the author(s) in the abstract, such as name of the institution(s), mailing and e-mail addresses.

The body of the abstract can be up to 300 words long and should not include figures or references. Use 12 point Times New Roman font, fully justified and single-spaced.

Authors will be solely responsible for the content of the material submitted and AAPG Europe Region will not edit the abstracts. Authors will be asked to release AAPG Europe Region and the sponsors from any consequence of distribution of the material.

Should you wish to contribute to our technical programme, please send your abstracts to [europa@aapg.org](mailto:europa@aapg.org) the deadline for submitting extended abstracts is 14th May 2012.

**Email: [europa@aapg.org](mailto:europa@aapg.org) / Call: +44 207 434 1399**

## The 3<sup>rd</sup> AAPG UK Student Chapter Leadership Meeting 20th & 21st of May, 2012 – Aberdeen

Aberdeen University was proud to welcome six AAPG Student Chapter leaders from across the UK to the third AAPG UK Student Chapter leadership meeting, taking place on the top floor of the New University Library, with stunning views across Aberdeen. Previous meetings have proved their worth in developing cooperation between UK Chapters and with nine active UK Student Chapters and two Young Professionals groups these meetings are invaluable in continuing the growth of the UK Student Chapter and Young Professionals network.

Given that a major aim of current AAPG President Paul Weimar is to retain young members, the main aim of this meeting was to energise the UK Student Chapters, encouraging them to hold more exciting events, such as field trips and short courses, in order to generate interest in the AAPG amongst students at all levels. This meeting was held in conjunction with the final North Britain Student Forum to allow a greater interaction with students, academics and industry representatives.

The icebreaker meal and drinks were where the AAPG discussions began and resumed the next morning in a more formal setting, where a range of topics were discussed including:

- How to keep the UK Chapters active
- How to generate funds for your Chapter
- Benefits of participation in the Imperial Barrel Award (IBA)

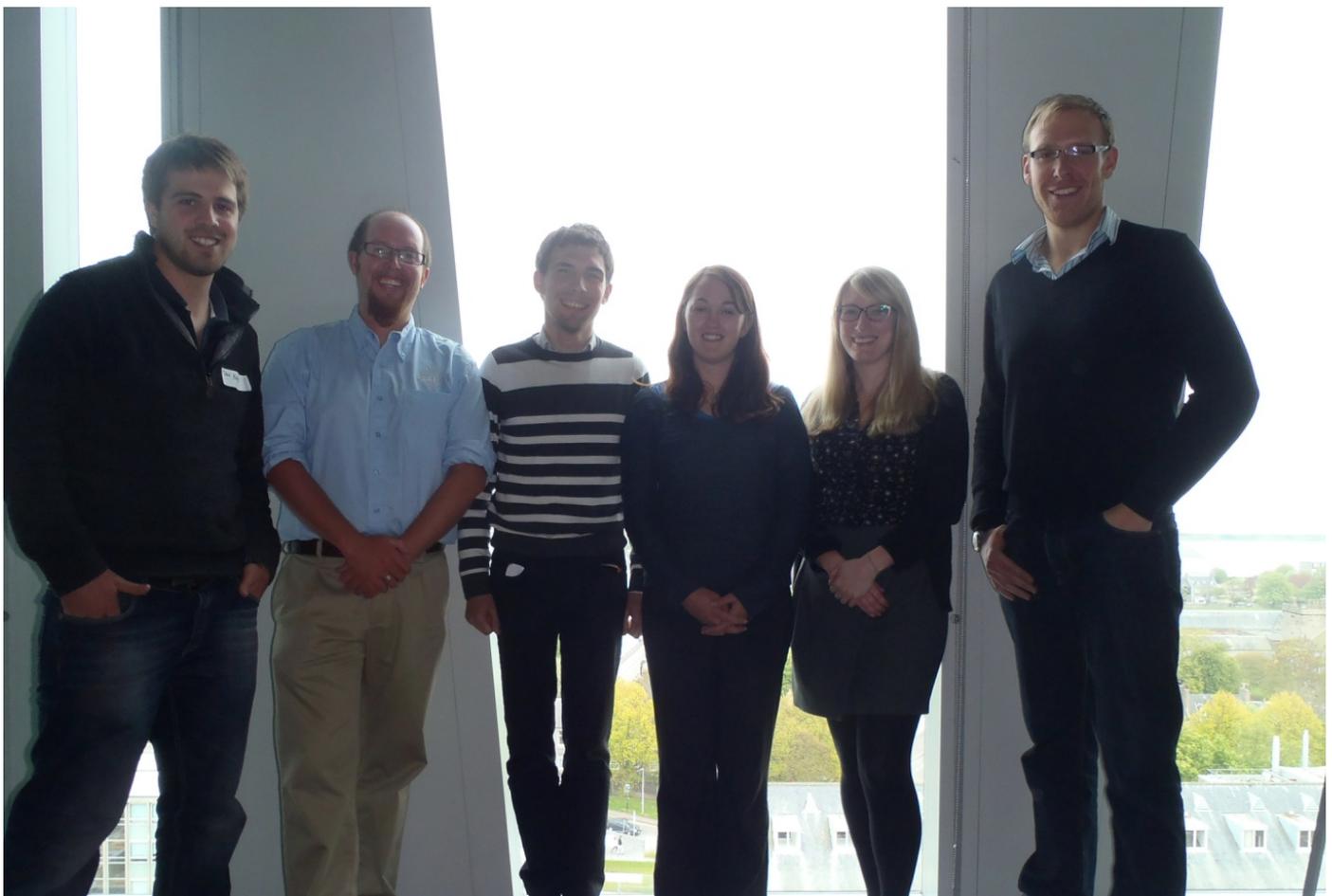
In addition to this each Chapter leader delivered a poster presentation on their Chapter to highlight their achievements over the last year and the challenges they face to continue their development.

Each leader left the meeting with a newfound enthusiasm for the AAPG and with a series of targets for their Chapter to reach over the coming year. Feedback was extremely positive, with everyone learning a great deal about the AAPG and the Student Chapter system. Planning for several multi-chapter field trips and meetings is now underway thanks to discussions at this meeting.

Dinner at Aberdeen beach allowed the UK leaders to socialise with academics and members of industry. The second day of the meeting allowed the leaders to join students from the contemporaneous conference on a field trip to Stonehaven, led by Dr. Stuart Archer of the ExploHUB initiative in Aberdeen.

This meeting was made possible thanks to an AAPG European Region grant providing funds to bring the UK leaders to Aberdeen and Total E&P UK for providing a prize for the best poster. ■

**Adam McArthur**  
AAPG UK Student Chapter Representative



*UK Student Chapter leaders after a hard day discussing how to get the most from the Student Chapter programme.*

## AAPG Delft and Amsterdam SCs : Trip to Limburg

The AAPG student chapter Delft organized a joint excursion with VU Amsterdam to South Limburg from the 30<sup>th</sup> of May to the 1<sup>st</sup> of June. A group comprising of Master and PhD students from Delft and Amsterdam took part in the 3 day excursion which informative and entertaining.

Paul van Olm is our tour guide from Georeizen, a group that organizes geoscientific activities that aim to promote the interest and dissemination of knowledge about the geosciences. The student chapters from Delft and Amsterdam were responsible for arranging the travel and accommodation for the participants and the tour guide.

The first day was mostly dedicated to travelling to the farmhouse at Terelingerhoeve, making ourselves comfortable and getting some background information of what was in store for us in the coming days. We started the evening with a good self-cooked dinner comprising of Dutch and Indian cuisines. Later on, a lecture about the geological history of the Netherlands and in particular Limburg, was given by Paul. The rest of the evening was spent by playing board games like Sjoelen, which is a typical Dutch game.

On the next day, we had a quick and healthy breakfast made by one of our very own chefs. We then took off in our vehicles to explore the wilderness and the outcrops from the Paleozoic Era. We took a walk along the Geuldal from Belgium to the Netherlands and visited different outcrops along the way. The most significant aspect of the day is to differentiate between the different tectonic regimes and to understand the various depositional mechanisms for the encountered lithologies, mainly Chert. We correlated these findings to understand the properties and geometries of the reservoirs in the Netherlands and Germany. It was very much relatable to the program 'Reservoir Geology' at TU Delft.

Barring a few minutes of quick showers, the day was bright and sunny which also lifted our spirits during the long trek. Back at the farmhouse, we spent the evening by cooking dinner and playing Sjoelen after dinner.

The theme of the second day was to go into the Mesozoic Era (not literally, but geologically). We visited a chalk quarry where we studied the geological history of the locality and also hunted for sea urchins. After spending a couple of hours at the quarry, we moved towards the second stop of the day; which was the Geulhemmerberg cave where we had a tour that took us to the KT boundary marked by a clay layer. This is a very good location to see the KT boundary as it is in a cave so not exposed to weathering. At parts where the



*Figure 1 An outcrop in the Geuldal, looking at a chert layer.*

clay layer was missing the roof was seeded with fossils. We also had a lot of debates on the theories surrounding the KT boundary. After this interesting tour we ended the excursion with a Gulpener beer and travelled back to Delft and Amsterdam. ■

**Joelle Langeveld**  
Delft SC



*Figure 2 Looking at sea urchins in a chalk quarry*

## Unconventional Shales in Europe: A look at the Science

*Dave Cook, Past President AAPG European Region*

*Julie Dee Bell, Chair of the European Region Education Committee*

Warsaw was the venue for a Geosciences Technical Workshop (GTW) on unconventional gas shale in Poland which was held on 10<sup>th</sup> to 11<sup>th</sup> May. The workshop was chaired by Steve Veal (DCX Resources, Denver, CO) and attracted an audience of industry, government and academic delegates. The format of the workshop followed a trusted formula of oral presentations during the morning followed by break-out discussion sessions in the afternoon. The topics for the break-out sessions were chosen at the end of each morning and each break-out group was given time at the end of the afternoon to present their findings to the workshop participants. Oral presentations covered play analogues, shale deposition and lithology, reservoir characteristics and analysis, and commercial development and

exploitation. There was a diverse range of discussion topics including porosity/permeability prediction, reserves assessment, play definition and lateral variation, model validation and the environmental aspects of hydraulic fracturing. There was a general consensus at the end of the workshop that Polish gas shales could indeed yield promising results.

Our thanks go to the speakers and the other participants in the workshop for the excellent presentations and stimulating discussion. We also thank Steve Veal and the AAPG London office staff for organising the workshop. We plan to hold further GTWs in future and would be pleased to receive proposals for subjects of topical interest from the membership. ■



*Figure 1. Terry Engelder, Penn State University, leads a discussion group*



*Figure 2. Discussion session*



Awards & Honors were ceremoniously presented at the Opening Session and Awards Ceremony at the ACE Long Beach, California in April 2012. Congratulations to all of them and thanks to all our active European Region members!

**RECOGNITION ER Councilor to the Advisory Council (2009-2012)**

Appreciation of his serving and representing European Region:

**Jean Gerard,**  
Repsol, Madrid



Figure 1. David Rensink (to the left), AAPG President (2010-11) with Jean Gerard

**Grover E. Murray Memorial Distinguished Educator Award**

The Grover E. Murray Memorial Distinguished Educator Award is given in recognition of distinguished and outstanding contributions to geological education:

**Andrew Hurst**  
University of Aberdeen  
in Scotland



Figure 2. Paul Weimer (to the left) - AAPG President with Andrew Hurst



**Howard D. Johnson**  
Imperial College,  
London

Figure 3. Paul Weimer (to the left) - AAPG President with Howard D. Johnson

**Distinguished Service Award**

The Distinguished Service Award is presented to members who have distinguished themselves in singular and beneficial long-term service to AAPG.

**Alain-Yves Huc**  
IFPEN, France



Figure 4. Paul Weimer (to the left), AAPG President with Alain-Yves Huc

**George C. Matson Memorial Award**

The George C. Matson Memorial Award is given each year in recognition of the best AAPG paper presented the previous year at the annual convention.

**Lars Wensaas**  
Co-authors: Marita Gading, Helge Løseth and Michael Springer  
Statoil, Norway

**AAPG House of Delegates**

**Distinguished Member of the House**

to recognize her contribution through her HoD membership to the emergence of the European Region and globalization of the AAPG

**Vlastimila Dvorakova**  
Czech Geological Survey; Brno



Figure 5. Paul Weimer (to the left) - AAPG President with Vlastimila Dvorakova, AAPG President European Region

**Recognition of Service Award**

Presented at the House of Delegates meeting David R. Cook Secretary/Editor of the "delegates' voice"



# AAPG FOUNDATION

## Congratulations to the 2012 Grants-in-Aid Recipients

The purpose of the Committee on Grants-in-Aid is to provide funds to students seeking graduate degrees in the geosciences whose research has application to the search for and development of petroleum and energy-mineral resources and to related environmental geology issues. The focus is principally upon M.S. degree programs, with Ph.D. projects considered if the proposal is not normally supported by other societies, or government agencies. This emphasis is in response to the perceived special needs at these academic levels. Committee guidelines are for a mix of funding addressing one-half M.S. and one-half Ph.D.

The 2012 [Grants-in-Aid](#) Committee has awarded 84 grants for a total of \$175,000. Please view the full list of recipients [here](#) sorted by country and state.

### Here are the European Region recipients listed by country:

#### Russia

Gubkin Russian State University of Oil and Gas

Ivan Deshnenkov

Gustavus E. Archie Memorial International Grant- \$2,000

#### United Kingdom

1. Durham University

Vivien Cumming

Rodger W. Stoneburner Memorial Grant- \$1,000

2. University of Aberdeen

Paula Robinson

Ike Crumbly Minorities in Energy Grant- \$3,000

3. University of Manchester

Maria Ramnath

Merrill W. Haas Memorial Grant- \$1,250

4. University of Manchester

Jesal Hirani

Robert K. Goldhammer Memorial Grant- \$3,000

5. University of Strathclyde

Chiara Mazzoni

Jay M. McMurray Memorial Grant- \$1,000

#### Germany

1. LMU Munich

Katharina Isabel Doehler

Marta S. Weeks Named Grant- \$3,000

2. Technische Universität Darmstadt

Obinna Peter Nzekwe

If you require further details, contact us by [e-mail](#), or write to:

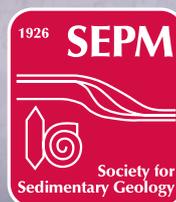
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## EUROPEAN REGION

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**Asociación de Geólogos y Geofísicos Españoles del Petróleo (AGGEP) - SPAIN**

Webpage: [www.aggep.com](http://www.aggep.com)  
 President: Aurelio J. Jiménez Fernández

**Association of Petroleum Technicians and Professionals (AFTP) - FRANCE**

Webpage: [www.aftp.net](http://www.aftp.net)  
 President: Isabelle Le Nir

**Austrian Geological Society**

Webpage: [www.geol-ges.at](http://www.geol-ges.at)  
 President: Christoph Spötl

**Azerbaijan Society of Petroleum Geologists**

Webpage: [www.aspg.az](http://www.aspg.az)

**Berufsverb and Deutscher Geologen, Geophysiker und Mineralogen e. V.**

Webpage: [www.geoberuf.de](http://www.geoberuf.de)  
 e-mail: [BDGBBonn@t-online.de](mailto:BDGBBonn@t-online.de)

**Bulgarian Geological Society**

Webpage : [http://www.bgd.bg/frames\\_home\\_EN.html](http://www.bgd.bg/frames_home_EN.html)

**Czech Geological Society**

Webpage: [www.geoljickaspolecnostl.cz](http://www.geoljickaspolecnostl.cz)  
 e-mail: [budil@cgu.cz](mailto:budil@cgu.cz)  
 President: Dr. Budil

**Energy Institute**

Webpage: [www.energyinst.org.uk](http://www.energyinst.org.uk)

**Norwegian Association of Petroleum Geologists**

Webpage: [www.scanviz.org](http://www.scanviz.org)  
 e-mail: [fr-po@online.no](mailto:fr-po@online.no)  
 President: Francisco Porturas  
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**Petroleum Exploration Society of Great Britain**

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 Tel.: +44 (0) 1224 213440  
 Mobil: +44 (0) 1224 213453

**Polish Geological Society**

**Romanian Association of Petroleum Geologists**

**Royal Geological and Mining Society of the Netherlands**

Webpage: [www.kngmg.nl](http://www.kngmg.nl)  
 President: P. A. C de Ruyter

**Scientific Council for Petroleum (Croatia)**

**Swiss Association of Energy Geoscientists**

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 President: Peter Burri

**Turkish Association of Petroleum Geologists**

Webpage: [www.tpjd.org.tr](http://www.tpjd.org.tr)

**Association of Ukrainian Geologists**