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Tuscan Trek

A beautiful way to study deepwater depositional processes

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS
AN INTERNATIONAL ORGANIZATION

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AAPG EXPLORER

PRESIDENT'S COLUMN

Geology, Models and AAPG

BY JOHN C. LORENZ


LORENZ

> ... Although (models) are important, they should not be confused with reality.

New Mexico State Geologist and prominent AAPG member Pete Scholle recently took a group of state lawmakers out to visit an active drill rig with the laudable objective of educating them on the expense and difficulty of finding oil and gas. After looking at the bubbling mud pits, the rotating drill string, and the array of expensive heavy equipment, one member of the delegation asked how much oil would be found by this well.

Silly question, of course, and on being told that the answer was "we won't really know until we get there," he apparently replied, with some puzzlement "What kind of a business model is that?" What kind indeed? Such uncertainty in a model is unacceptable to most professions, yet industry geologists deal with it all the time.

Our industry, like many others, uses various types of models – business models, reservoir-engineering models, and geologic models – and although they are important, they should not be confused with reality. The lawmaker's comment brought to mind Wallace Pratt's 1952 paper "Toward a philosophy of oil-finding,"* recommended to me not long ago by Ted Beaumont, former AAPG Science Director, AAPG Secretary, and all around gentleman.

Pratt's thesis was that exploration geologists need to create and use conceptual models that account for the unknown. This sounds hokey but Pratt had an intriguing and valid point. The belief that being knowledgeable will account for all facets and parameters of a problem can obscure significant possibilities. By way of example, Pratt pointed out that the conceptual models used to calculate oil reserves during the early part of the 20th century consistently gave estimates that were significantly below reality because the then-current geologic knowledge and models were not recognized as woefully incomplete.

An interesting facet of modeling is the disparity between the imprecise nature of geologic data and the discrete input requirements for most models. For example, natural-fracture populations typically consist of fractures with wide ranges of heights, apertures, spacings, and lengths, whereas most reservoir engineering models require uniform input values for these parameters. I used to make excuses for such variability until I finally realized that geologic measurements are reality, and that the inability of a given model to accommodate reality is a limitation of the model, not a geologic deficiency.

As an organization, AAPG uses a mixed model consisting of paid-staff and volunteers. This means, among other things, that as much as I would like to, even as president I can't tell anyone, especially the volunteers, what to do. Moreover we use a not-for-profit conceptual model, yet the reality is that we cannot operate at a loss. We try to plan AAPG programs and activities such as education and publications to at least break even. The AAPG Education Department has worked with several models over the years, and we have managed to irk different people no matter what we do. Should we strive for inexpensive, affordable classes, allowing as many members to participate as possible, or do we hire expensive instructors with polished materials and charge students accordingly? Given that two-thirds of our members are either consultants or work for companies with less than 200 employees, the former model makes sense. On the other hand, as measured by the number of very capable companies making a living providing high-end education and training, geologists working for the larger oil companies provide a continuing demand for this service.

The AAPG Publications Department also uses an interesting model. AAPG publications do not have to turn a profit in the commercial sense, thus they can be priced relatively inexpensively, especially when corporate donations help defray publications costs. We try to price AAPG publications so they are affordable to members but also so that the returns from sales cover the cost of publication within a few years. The Publications Department is a designated "profit center" within AAPG, but that only means, if and when the cost of a book is amortized, that profits from sales are used to cover other AAPG programs. No one is driving a Porsche as a result of profits made from the AAPG education or publications programs.

Models are useful because they provide an outline, a standard by which to measure activities, progress, and concepts. But one must always be aware that they are only a representation of reality.

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REGULAR DEPARTMENTS

ON THE COVER:

Participants in last year's Hedberg Conference, held in Tirrenia, Italy, were able to visit the nearby Calafuria platform (left) – a beautiful way to study deepwater depositional processes on and adjacent to submarine thrust belts. These sandy units, the Macigno Costieri, offer spectacular reservoir analogs for near sea-bed remobilization. AAPG will sponsor three field trips to European locales in 2010 – including one in Italy. For more information go online to www.aapg.org/education. Photo by AAPG Education Department manager Debbi Boonstra.

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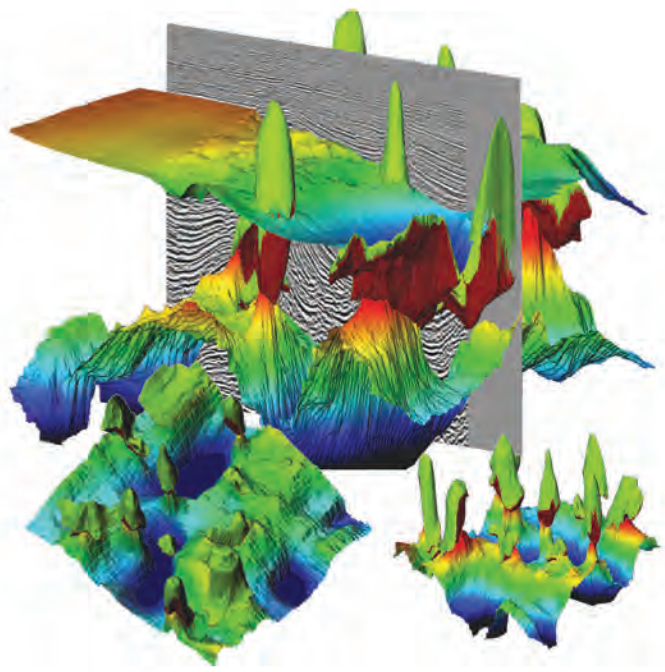

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SYSTEMS ACQUISITION LICENSING PROCESSING IMAGING

The good, the bad, the ugly

Regions Report E&P Triumphs, Challenges

By VERN STEFANIC, EXPLORER Managing Editor

Pre-salt discoveries in Brazil, shale gas potential and tight gas exploration in eastern Europe and, in Africa, a virtual continent of activity and opportunity.

And there's more. Much more. So much, in fact, that some key observers say many valuable discoveries and developments may be in store for the profession and industry in 2010.

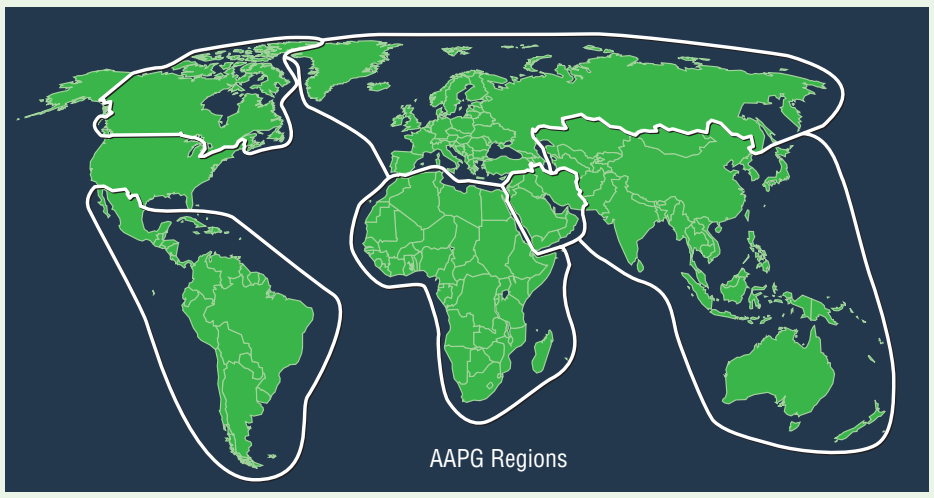
There will be challenges, too, the same experts quickly add. Geopolitics, financial concerns and geographical barriers are all potential deterrents to not just positive dreams but actual fruition of plans.

Welcome to the new decade.

And welcome to a new emphasis by the EXPLORER to follow and report throughout the year the triumphs, frustrations and ongoing trends from all six AAPG Regions.

Starting with this issue we'll take periodic, specific looks at the general state of exploration and activity around the world through contacts with AAPG's Region leadership.

After all, in addition to being important strategic bodies for Association activities and structure – plus key tactical communication channels for internal AAPG operations and promotion – Region leaders by definition speak to members throughout their spheres of interest. And they listen.


AAPG Regions

They're also uniquely wired to the latest industry developments. They know where the seismic crews are heading. They know about the latest technological creations – and where they're being used. They know the latest breakthroughs in scientific thoughts and understandings.

They know who is doing what, where.

Recognizing that, one of our goals for the coming year will be utilizing the Region leadership as an ongoing source of information that is important for AAPG members and EXPLORER readers – helping us to report globally the developments in what promises to be a challenging but potentially rewarding era of exploration.

This month, the focus is on the Latin America, European and Africa Regions, using as our sources:

❒ **James K. Agbenorto**, serving his second year as Africa Region president. He is with the Ghana National Petroleum Corp., Tema, Ghana.

❒ **David R. Cook**, serving the first of two years as European Region president. He recently retired from ExxonMobil, and resides in Haslemere, England. (Assisted in his response by **Bert Clever**, secretary of the AAPG European Council, and **Istvan Berczi**, the council's past president.)

❒ **Enrique Velasquez**, serving the first of two years as Latin America Region president. He is with Ecopetrol, Bogota, Colombia.

Similar reports from AAPG's Canada, Middle East and Asia Pacific Regions are set for the May EXPLORER.

This month, all presidents were asked the same questions regarding exploration activities, developments and potential in their respective Region.

The intent was to raise the profile of AAPG's Region leadership while providing a valuable glimpse into the international arena.

Their answers begin below.

Africa Region

"The importance of the Africa Region as a useful source of energy for the United States and western Europe has grown considerably over the past couple of years," Agbenorto said, "largely because of increased turmoil in the Middle East and the rise of nationalist governments in Central and Southern America."


AGBENORTO

The rapid economic growth of China and India also has resulted in increased E&P activity.

"China, for instance, has indicated great interest in West African oil resources," Agbenorto said, "and it recently became Africa's second-biggest trading partner behind the United States.

"Such activity/dynamism has called for continued transfer of technology into the Region and for greater involvement and expertise of African geoscientists and engineers from around the world to explore for and exploit 'home-based' hydrocarbon resources and reserves," he added.

Of the 12 countries that make up the OPEC cartel, a third of them (Algeria, Angola, Libya, Nigeria) are African.

Agbenorto described Africa E&P activity over the past year as "generally robust and promising, even though different locations have seen evidences of all four attributes in diverse dimensions – healthy, robust, troubled and (positively!) promising. In various locations seismic surveys have been under way and drilling rigs were being relocated to the area."

Specific developments include:

- West Africa's Gulf of Guinea, now one of the world's most important targets for deepwater E&P.

"After years of political upheaval and brutal civil wars, particularly in Liberia, Sierra Leone and Côte d'Ivoire, the sub-Region has begun to experience a more positive environment for oil and gas development," he said.

- The recent discovery of the giant Jubilee Field in Ghana, coupled with U.S. President Obama's new African foreign policy, has helped make West Africa a hot destination for oil and gas E&P, he said.

- December 2009 marked the 10th anniversary of deepwater oil production in Angola. Since oil started flowing from Chevron's Kuito field in late 1999, deepwater production there has grown to about 1.5 MMBPD, eclipsing deepwater totals from the Gulf of Mexico and Nigeria, and sitting in second place after Brazil in the global deepwater oil rankings.

"Angola has 12 major deepwater projects exploiting 35 fields that initially contained 6.5 BBO," he said. "It is the second-largest oil producer in sub-Saharan Africa after Nigeria."

- In Nigeria, visiting Russian President Dmitry Medvedev suggested investing up to $2.5 billion in Nigeria's energy sector as it tries to catch up with China in gaining a share of Africa's natural resources. Russia's Gazprom has also been keen to get involved in the Trans-Saharan Pipeline aimed at bringing Nigerian gas to Europe.

- Several discoveries were made in North Africa over the past year including major finds in Libya, Algeria, Egypt, Morocco and Sudan.

- Major discoveries in other parts of Africa were reported in Uganda, Kenya, Mozambique, Madagascar and Namibia.

"Hitherto, the hot spots had been only in the West and North Africa," Agbenorto said, "but today, with major discoveries in these and other previously unknown areas, attention is spreading also to East Africa (e.g. Tullow Oil's finds in Uganda) and to South Africa, where Royal Dutch Shell in 2009 picked up an offshore deepwater exploration license in the Orange Basin, followed by a Technical Cooperation Study agreement for the onshore Karoo Basin."

Agbenorto also called "of great significance" the deepwater play fairway systems in West Africa, such as in Nigeria (e.g. the giant Bonga, Agbami, Erha, N'nwa); Angola (e.g. Girassol, Kizomba, Dalia); Congo (e.g. Moho, N'Kossa); Equatorial Guinea (La Ceiba, Zafiro); and lately in Ghana (the giant Jubilee field).

"I expect to see increased E&P activity throughout the emerging oil provinces of Africa from 2010 on," he said. "Many new players will emerge over time, and with good resource management practices, even outstrip E&P outputs of the older 'pioneers' by taking advantage of mistakes committed by the latter."

The biggest challenges facing the Region, he believes, are:

- The global credit crunch – "a threat to availability of indispensable investment capital for E&P projects," he said.
- Unstable world oil prices.
- Civil unrests and political upheavals.
- Socio-economic effects of global warming and climate change.
- Implementation of plans and programs to boost geosciences training opportunities in the AAPG Africa Region – e.g. AAPG short courses, field trips. Distinguished Lectures, Visiting Geoscientists programs, etc.

But even with these, he sees "unparalleled opportunities" for both majors and independents.

"The year promises a lot of activity and dynamism for the continent of Africa in terms of oil and gas."

European Region

The current state of the European Region, according to Cook, may hold some nice potential but also serious challenges.

"A strong, integrated and active group of explorationists is still recognized as the most effective way to add value to a company by what is called 'organic growth,' which is very much a long-term


COOK

activity," he said. "However, reality shows that the policy of hiring young G&G professionals in many companies is at a low level, which as a short-term reaction to the current situation is surprising considering the difficulties the industry faces as a result of previous recruiting downturns.

"Representation of G&G experts in higher management positions is at a similarly low level, which may be one of the reasons that exploration budgets have been reduced to the extent that they have, as a short term response to the recession," he said. "Hence, the state of the industry is very much one of constraining long-term investments in favor of short-term targets, which does not bode well for the middle term health of the industry."

Cook pointed out that exploration in Europe is "declining in the mature oil and gas provinces of the UK, Norway and the Netherlands.

"There continues to be a large amount of acquisition and divestment activity in these areas as the majors move out and the smaller independents take hold," he said. "Drilling activity in the North Sea remains at a low level and is likely to remain so due to the current cash-constrained nature of the industry as a whole and the smaller players in particular."

Exploration in the mature areas, he said, could certainly be described as "troubled."

"Main players are focusing their attention on eastern Europe and Greenland, and exploration in these areas could be described as 'promising,'" he said. "It is hoped that further acreage rounds in the North Sea, Norwegian Sea and the Atlantic margin will reactivate exploration in these areas over the next few years."

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Regions
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Hot areas of exploration include:

- In western Europe discoveries of significance are only being made on the Norwegian continental shelf, Cook said.

"Exploration activity in the North Sea is focused on near field exploration and appraisal, and discoveries tend to be small and economic only due to the proximity of infrastructure," he said. "It is anticipated that exploration activity in the UK, Norway and the Netherlands will continue at the current relatively low level for the next few years."

Exploration for plays in structurally and stratigraphically deeper levels, he added, "has not yet been very successful, and new concepts are required to make these deeper intervals an interesting target."

- A race has developed among super-majors and majors to take a lead in exploring unconventional plays in eastern Europe and in particular Poland, Hungary and Romania.

"The Black Sea basin is receiving renewed attention with 3-D surveys being planned for deep water areas of Romania and Turkey," Cook said. "It is likely that exploration activities will increase in this area over the next few years."

- The major international oil companies continue to be interested in Russian exploration and development, but "the political situation continues to provide huge uncertainty particularly with respect to resource ownership," he said.

"Considering the large amount of investment needed to maintain the current position of Russia as a pre-eminent producer, ageing infrastructure together with the vast petroleum potential of the Arctic (~100Boe in return for investment of $3-6 trillion) demonstrate that it is in Russia's national interest to change its 'xenophobic' approach to foreign investments soon."

Looking ahead "from a conventional point of view," the hottest area in western Europe probably will be the Atlantic Margin, stretching over more than 3,000 miles from the Iberian peninsular to northern Norway, Cook said.

"In this area relatively few wells have been drilled," he said, "and there is significant room for the pursuit of new exploration concepts, geological structures and technology."

The other area to watch is eastern Europe, where exploration for onshore shale gas and tight gas already has begun.

"Development of these potentially vast accumulations will have to be different from that so successfully being achieved in the USA," he said. "In Europe, dense population and strong environmental legislation will preclude drilling of thousands of wells at small spacing. The footprints of such developments will have to be very much smaller ... and significant technological breakthroughs will be required to recover these resources."

It also is anticipated that exploration activity "will increase in the Black Sea basin, where there is a renewed interest in the deepwater areas," he said.

Challenges in 2010 include:

- Major step changes in technology will be required to mitigate exploration and development risk.
- For onshore, "we will need to improve our ability to locate the sweet spots in shale gas plays and reduce the environmental footprint of drilling and development activities," he said.
- In mature areas a key challenge is to maintain hydrocarbon production as Europe becomes more reliant upon hydrocarbons from external sources.

The final challenge: "Strengthening the general perception that a strong E&P industry is needed if we want to change our energy palette in the next two to three decades," he said, "and maintain or improve our current level of economic activity.

Latin America Region

Latin America's current story of exploration, development and potential may be the best known among all parts of the globe – and not just because AAPG recently held its successful international conference in Rio de Janeiro.

Practically, it's a tale of two countries.

First, the good news: Brazil's pre-salt discoveries, industry developments and enormous potential have been headline grabbers for the past two years, and no signs of letting up can be found.


VELASQUEZ

"The 'state' of the Latin America Region is very active in Brazil because of the pre-salt discoveries," Velasquez said, "with high exploration activity in Colombia since numerous contracts were signed in the past years.

The rest of the story?

"In the remaining countries of the Region activity is pretty low," he said, "with minor activities in Peru, Ecuador, Bolivia and Argentina."

Exploration, then is "healthy in a couple of countries, and troubled in the rest of the region."

Velasquez expects activity in Brazil and Colombia to increase in 2010, including development of the Brazilian discoveries that have dominated news stories for the past few years.

He hopes that the Region will be able to overcome the "biggest challenge," which is a lack of activity in all but Brazil, Colombia and, to a smaller extent, Peru.

"I would like to see major changes in contractual and fiscal terms for exploration in countries like Ecuador, Argentina, Bolivia and Venezuela that allows an increase in exploration activity and in demand for professionals in these countries," Velasquez said.

In the meantime, keep watching for stories with either a Rio de Janeiro or Bogota dateline. The news there in 2010 should be good.

What ever happened to ….

Some Promise Realized; Others? Not So Much

BY DAVID BROWN, EXPLORER Correspondent

It's another year and, in theory, a new decade.

Time to look back at some of the headline plays of the past 10 years.

Not the big, successful plays.

The ones that make us scratch our heads and say:

"What Ever Happened To ... ?"

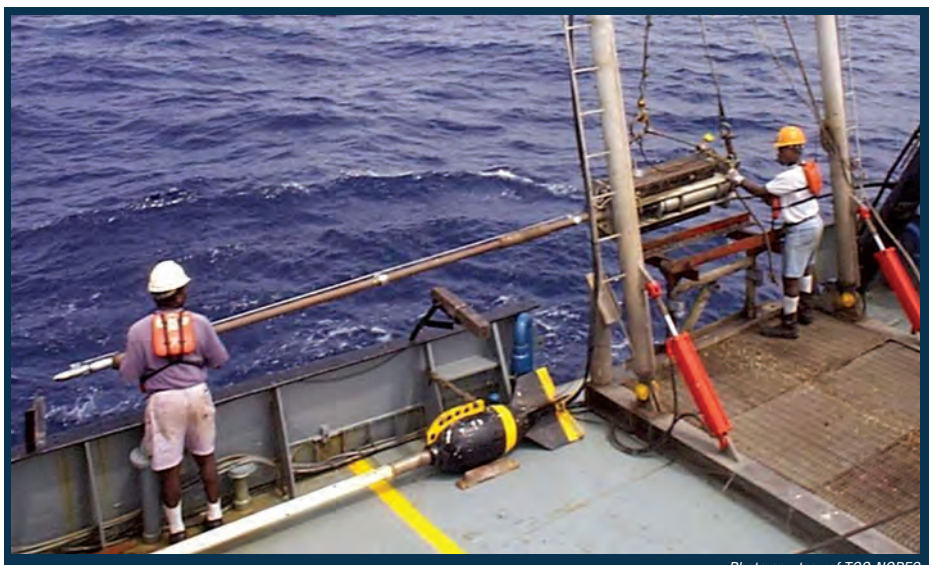

Photo courtesy of TGS-NOPEC

Cutting-edge technology used in innovative ways has helped in Indonesian exploration – but the story's final chapter is still unwritten.

WEHT Javanese Exploration?

Last year ended with good news from Indonesia. The government said it will work to attract more than $30 billion in oil and gas investment over the next five years.

State oil company Pertamina announced plans to increase its capital spending to $4.1 billion in 2010.

TGS-NOPEC Geophysical has highgraded Indonesia's offshore frontier basins using seismic and seep data (EXPLORER August 2008).

Sounds promising, doesn't it? But consider the fate of the Cepu block on Java.

Cepu might be the world's most important oil production area that nobody talks about. Plans still call for Cepu production to increase until it reaches 150,000-165,000 barrels a day.

That's a key factor in Indonesia's drive to become an oil-exporting country once again.

ExxonMobil drilled the discovery well at Cepu in 2001, then spent years haggling with the government over operating and development plans and a revenue-sharing agreement.

At best guess, Cepu now produces less than 20,000 barrels a day.

Pertamina subsidiary PT Pertamina EP said it will drill 25 new oil wells in Java, with plans to lift its Javanese oil production to 26,000 barrels per day this year. The company also has drilled exploratory wells on the island's northern coast.

Indonesia wants to attract outside investment for both oil and gas drilling. It's trying to shift domestic energy consumption toward natural gas, leaving more oil for export.

If the government shows some flexibility with foreign operators, Indonesian exploration could rebound in the coming years.

WEHT Suriname Exploration?

Offshore Suriname looked promising for exploration, with good production potential and 3-D seismic evaluation under way (EXPLORER August 2005).

According to the U.S. Geological Survey, this region off the northeast coast of South America could hold 15 billion barrels of oil and 42 trillion cubic feet of gas.

Then Noble Energy Inc. and Repsol YPF announced that their West Tapir exploration well, drilled to 12,700 feet in Suriname offshore Block 30 in 2008, did not contain commercial hydrocarbons.

It's the old story of one bust in a frontier area derailing additional drilling plans.

Meanwhile, exploration interest has moved offshore neighboring Guyana. CGX Energy Inc. of Toronto has been looking for a joint venture partner to drill a 3-D seismic-defined, multiple-target prospect in the Suriname-Guyana Basin.

The company was active in the area in 2000, but Suriname forced it to suspend drilling – the result of a long-simmering, maritime territorial dispute with Guyana.

Both countries later agreed to abide by an offshore boundary determined by the International Tribunal for the Law of the Sea.

WEHT Greenland Exploration?

The industry has recorded a string of tremendous moral victories in Greenland.

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Photo courtesy of Gerald Zinnecker

Rugged Greenland is considered one of the world's Top 10 spots for frontier exploration – but industry results there have been, to date, "moral victories." Above, the town of Uummannaq.

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As in, "We didn't find much in the way of hydrocarbons, but we got ourselves some good data and geological information."

Statoil and three partners restarted exploration activity off the country's western coast after a drilling hiatus since the 1970s (EXPLORER September 2000).

Now Greenland is offering up 14 new offshore blocks in Baffin Bay for licensing. Heavy interest in the area attracted 13 companies to apply for prequalification as potential operators in 2009.

And Cairn Energy PLC has contracted a drillship to begin exploration activity in Greenland's offshore Disko West region later this year.

There's some reason for optimism. Various studies put the oil potential of the Baffin Bay area at 15-20 billion barrels of oil equivalent. Seismic coverage of the offshore has expanded steadily.

Greenland is considered one of the world's Top 10 hot spots for frontier exploration – if you can call frigid Greenland a "hot" spot – so look for a spate of drilling after the tender round ends this year.

For the country to attract serious and ongoing interest, someone will have to unlock the offshore geology and find significant production.

After that, economics will determine the level of future exploration activity.

WEHT New Zealand Exploration?

Go down under and look below that and you'll find New Zealand, a country with prospects in deepwater basins (EXPLORER October 2006).

Remoteness is just one of New Zealand's challenges. Its domestic industry doesn't have the means for extensive deepwater exploration. The entire country has a population total not much larger than Los Angeles.

Yet, New Zealand has turned into an interesting success story.

First oil began flowing last year from the offshore Maari oil field, the country's largest. Maari and the adjacent Manaia Field are about 80 kilometers off the southwest tip of New Zealand's North Island.

OMV Ag of Austria operates the field in a joint venture with three partner companies. One of the minority partners estimated that Maari and Manaia reservoirs together hold more than 100 million barrels of recoverable oil.

Just to the north in the Taranaki Basin lie the large offshore Maui gas and oil field and the Tui Area oil fields. Exploration and evaluation work in the region continues.

Another area of interest is the Great South Basin, offshore and south of New Zealand's South Island. The country's Ministry of Economic Development has projected several billion-barrel fields in that basin.

Total spending on oil and gas exploration in New Zealand in 2008 was the highest in a decade, and the country expected to become fully self-sufficient in oil production last year.

WEHT Washington Exploration?

We hear so much about the Washington on the right-hand side of the United States, we sometimes forget about the state on the left-hand side.

EnCana Corp. kicked off a new round of exploration in Washington's Columbia Basin with a 14,000-foot wildcat near Yakima (EXPLORER November 2005).

Trillions of cubic feet of natural gas might underlie southeast Washington. The problem? Above that potential gas accumulation stretches up to 12,000 feet of Miocene basalt.

Drilling through the stuff is tortuous, expensive and slow. EnCana declared the test noncommercial and sold its interests in the basin to Delta Petroleum Corp. of Denver in 2008.

Last September, Delta announced results from its Gray 31-23 well in the Columbia Basin. The company said it perforated and tested prospective zones at 11,580-12,280 feet, finding high pressures but no commercial

See **Global Update**, page 19

Europe play in early stages

Poland Silurian Shale Ready for Action

BY LOUISE S. DURHAM, EXPLORER Correspondent

The rapidly accelerating number of shale gas plays in the United States has been a boon both for the industry and the end users of the natural gas being produced.

Besides its positive impact on the drilling rig count, the shale gas action has resulted in burgeoning supplies of this relatively clean-burning "homegrown" fuel.

The operators' positive view of the sizeable producing potential for shale gas plays was rather dramatically reinforced recently with the announcement that industry behemoth ExxonMobil intends to acquire XTO Energy, which is a leading developer of U.S. unconventional resources including shale gas and oil. The deal reportedly is valued at $41 billion.

This announcement was followed by another striking testament to the upside for shale gas plays, when French company Total SA inked a joint venture arrangement with shale gas veteran Chesapeake Energy. Included in the deal is a 25 percent stake in Chesapeake's sizeable Barnett Shale holdings.

Given the continuing highly publicized activity in North American shale gas plays, it's easy to overlook the fact that shales and other unconventional gas targets don't stop at the U.S. borders.

Europe, for instance, is attracting considerable interest in its unconventional gas reserves overall – shale, coalbed methane and tight gas.


ARCHIBALD

> "We had tremendous wealth of experience in shale gas, and we have diverted a lot of that to screening the best plays overseas."

Some regions are particularly appealing for shale gas potential.

Think Poland, for instance.

"The Silurian shale that runs through Poland is very laterally extensive and reasonably thick – up to 200 meters potentially thick – and looks like it's been in the gas window," said Rhodri Thomas, European upstream research manager for Wood Mackenzie.

"It has a high organic content, and the silica content indicates it could be more suitable for fracing versus a ductile shale," Thomas noted. "It looks like very interesting shale for shale gas potential."

Provided the shale proves to be an economically viable resource, the possibility exists that 48 Tcfg could be recoverable in over a decades-long period, according to Thomas.

An International Play?

Any significant new gas discoveries and production in Poland could enhance energy security for the country – and also its neighbors.

Poland currently acquires about two-thirds of its natural gas via imports from Russia. It recently announced the possibility of supply cuts to some of its industrial customers, depending on temperatures and the possibility of lowered supply volumes from Russia.

Some domestic-based E&P companies already are setting up shop in Poland to take advantage of shale gas opportunities.

For example, ConocoPhillips and Marathon – both with shale gas expertise honed domestically – are acquiring some big stakes to get in at the beginning of what ultimately may become a shale development boom of sorts.

Marathon currently holds licenses in Poland that total about 545,000 acres, according to John Porretto, media relations spokesperson at Marathon. He noted they are pursuing additional licenses.

The present holdings include an onshore exploration license of 249,000 acres at the Orzechow Block in southern Poland, where Marathon is operator and has a 100 percent working interest.

At the Kwidzyn Block in the north central region, the company is operator and holds a 100 percent working interest in 296,000 acres.

During a Marathon presentation to analysts, it was noted that Poland's lower Paleozoic shales host a range of TOCs ranging up to 7 percent. Shale thickness varies between 100 and 500 feet, with well depths between 8,000 and 13,000 feet.

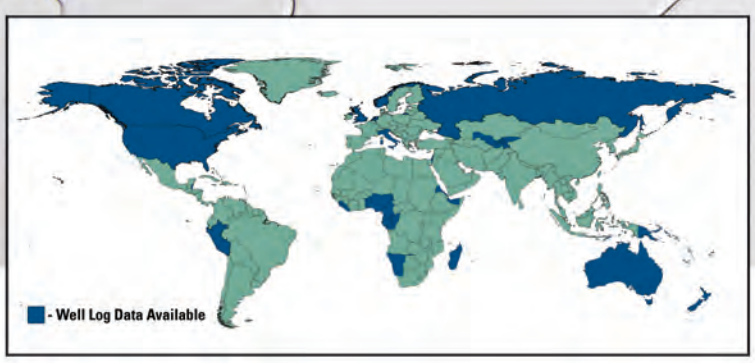
ConocoPhillips also has been busy putting together a significant position to test this promising potential shale gas play.

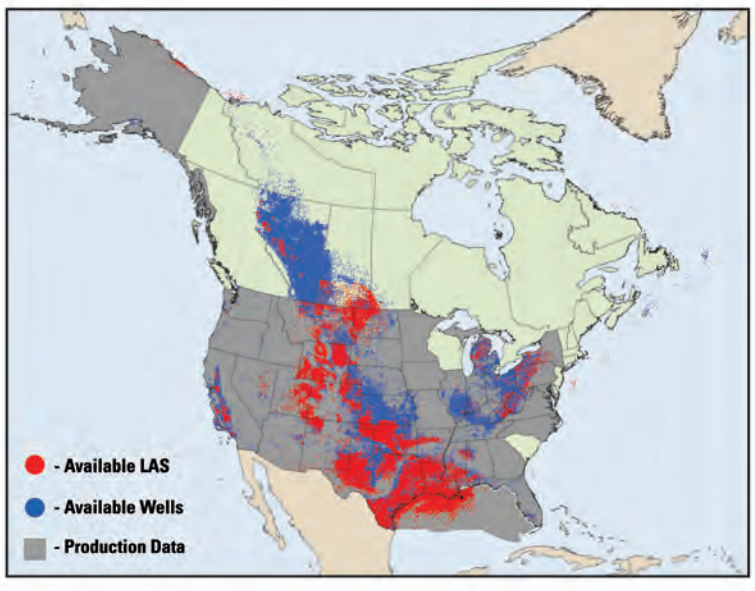
"We had tremendous wealth of experience in shale gas, and we have diverted a lot of that to screening the best plays overseas," noted ConocoPhillips Senior Vice President for Exploration and Development Larry Archibald, an AAPG member, during a presentation to Barclays Capital 2009 CEO Energy and Power Conference, which included a brief look at the company's position in Poland.

"We have just signed an evaluation agreement with (Warsaw-based) Lane

See **Poland**, page 18

Missing well data?





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Exploration trainees to generate prospects

Aberdeen 'exploHub' Teaches by 'Doing'

BY BARRY FRIEDMAN, EXPLORER Correspondent

Aberdeen, Scotland, historically has been called the Granite City, but since the discovery of oil in the late 1970s it also has been called the "Energy Capital of Europe."

In fact, this city of approximately 200,000 residents – about the same as Lubbock, Texas – boasts the world's second largest geosciences community (next to Houston, which has 15 times the population).

With such a concentrated reservoir, if you will, of talent and experience, Aberdeen is a good place to consider the challenges the profession is facing – or, more to the point, the problems it will face.


HURST

And that's the theory behind exploHUB, a new training and research center currently being set up at the University of Aberdeen.

Its mission, according to AAPG member Stuart Archer, its director, is "to provide a unique training environment that will provide an accelerated exploration geoscience training program to meet the challenge of discovering the Earth's remaining hydrocarbon resources."

The rationale, Archer says, came about because:

- The perceived lack of regional-scale play fairway analysis skills.


ARCHER

> "Surely, this is an issue with which academia can engage by helping the E&P industry cope with a high turnover of staff."

- Something needs to be done to help fill the rapidly approaching loss of experienced explorationists.

That second point may be more important, for many in the industry are predicting the "Great Crew Change," which will be the mass exodus of seasoned geologic professionals in the next decade due to retirement.

Where their replacements will come from and how trained they will be are two areas that exploHub will address.

A Complex Challenge

Archer says the solution to the dilemma will be more difficult than simply increasing the industry's presence at job fairs and recruitment drives.

"It's a more complex issue than just trying to re-fill the hopper," he said. "There has always been an ongoing crew change – we have been losing good experienced hands to retirement ever since the E&P industry began. It's all about the scale and geographic extent of this particular demographic anomaly.

"Before we talk about potential solutions, one should first consider the scale of the problem," he continued. "Is it a global phenomenon? Is it restricted to 'western' companies and societies? Is the problem restricted to E&P companies? etc. Consider this, if our skills pool is truly global then local centers perhaps need not worry?"

Fellow AAPG member Andrew Hurst, professor of production geoscience of Aberdeen, agrees, wondering if the "crew change" is due, in part, to the industry emphasizing the wrong kinds of jobs.

Calling it a "self-created" situation, Hurst says one of the problems is there are too few geoscientists in the mid-range demographic profile.

"An alternative is to change their focus and to bring on the younger talent. It is relevant experience not simply experience that is surely important?

"It surprises me that many oil companies are not planning to hire graduates, or hire less graduates, this coming year – sort of shooting one's self in the foot perhaps – certainly sending out the wrong signal to graduates/potential employees!"

Archer says the number of geoscientists that will be needed may not be as important as the kinds that will be required.

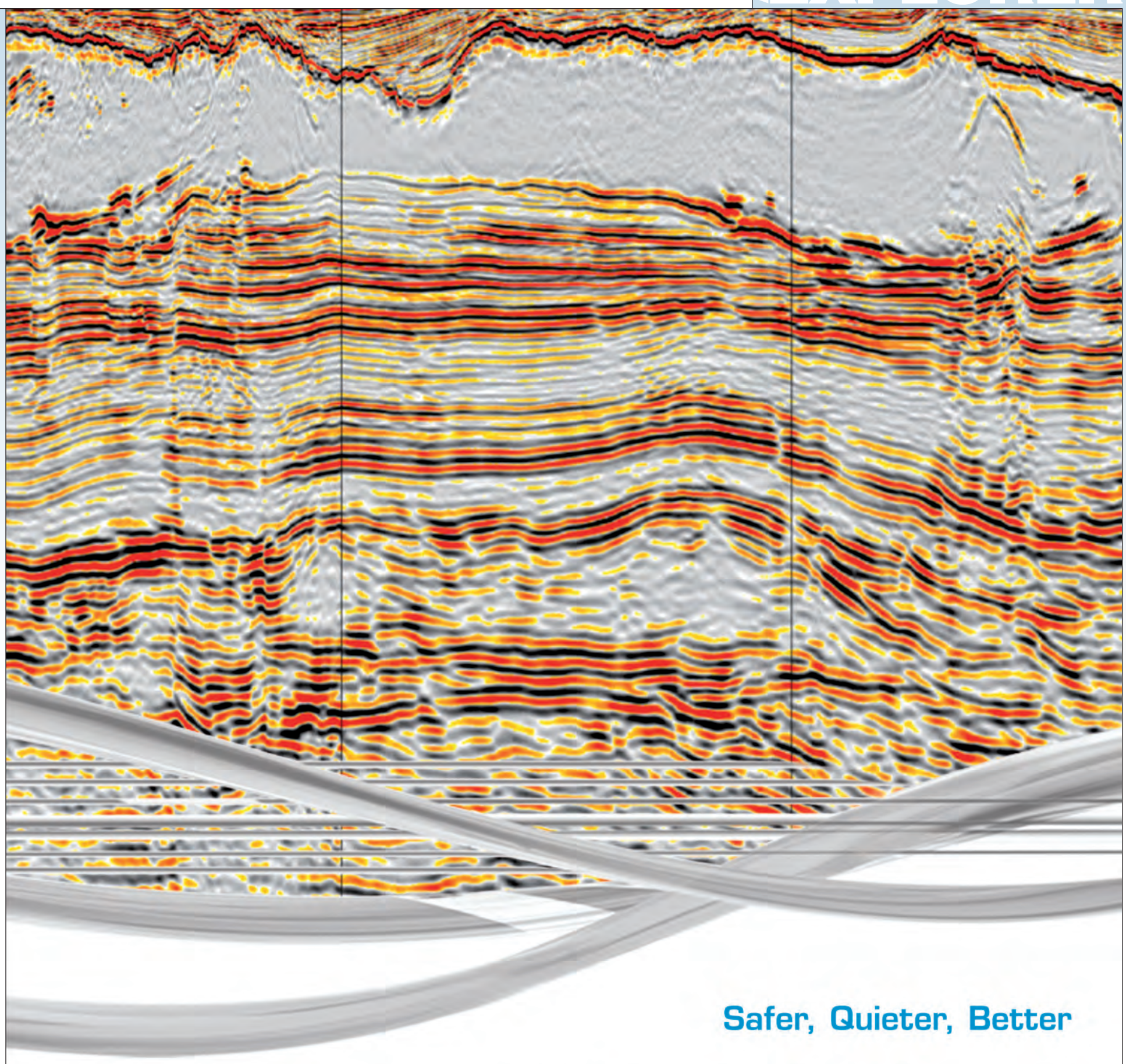
"Major uncertainty exists as we move toward low-carbon based economies," he said. "Will there be the need for the same number of geoscientists in tomorrow's world? Some would argue that even if there is still substantial work to be done in the unconventional and sequestration sectors, it could be achieved with less staff if modern technology can speed up workflows and reduce interpretation time.

"The 'wise words' regarding technology," he quickly adds, "are usually that new technology requires a larger and more-skilled work force!"

Which is not to say the problem is not – or may not become – severe.

"If, after some deeper analysis, we conclude that the crew change is a global problem of sufficient magnitude to affect the vital operations of the global energy industry and threaten short- to medium-term energy demands, then we must search for appropriate solutions," he said, "and quickly."

See **exploHUB**, page 18



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exploHUB
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Training Grounds

Archer believes some aspects of the industry will be able to handle part of the change – but that's not the entire story.

"Oil companies may have to manage the 'crew change,' but one should remember that although the demographic peaks and troughs are a function of the prior and current actions of oil companies, those companies may not be the only environment where solutions can be found."

And that, he says, is where exploHub and the University of Aberdeen can be a valuable resource.

"Surely, this is an issue with which academia can engage by helping the E&P industry cope with a high turnover of staff. ExploHUB is designed to address the problem of the crew change by managing the necessary skills transfer through training in the fundamentals of exploration practice and methods."

Participants in the program will not be exposed to your parent's geology classes.

"The exploHUB training initiative is a step beyond learning," Archer said. "ExploHUB is training – not classroom-based education – and in this way differs markedly from short courses. ExploHUB operates and feels like a dedicated exploration team in an oil company rather than a classroom. We 'learn by doing' rather than 'chalk and talk' or 'death by PowerPoint.'"

The hope is that in this type of immersive training environment, two to three years of industry based learning can be distilled into nine months. The program also will include longer and shorter modules.

The program also will allow trainees to generate play and prospect portfolios as a byproduct of the training. In turn, all information regarding plays and prospects will be fed back to the investing companies – those that have sent their workers – on a regular basis via a prospect fair and short report.

Archer hopes this transfer will stimulate activity on the UK continental shelf, where the program will initially focus.

("We envisage exploHUB exploring further afield once the program is established," he added.)

Calling exploHub a "gathering place" for explorers in general, Archer hopes the program will nurture those qualities of inquisitiveness that make-up the mind of an exploration geologist. Most exploHUB trainees, he says, will have had some experience of the industry, but it's not a requirement; he thinks some will come from undergraduate and postgraduate programs.

"This diversity will be valued in the same way that a blend of expertise and contribution style is recognized as valuable in industrial teams."

The program, which has been endorsed by the AAPG Executive Committee; will begin this coming September, and Archer says it was a challenge to begin the program during "the worst economic crisis since the 1930s," and will include those from national oil companies, technology, the geosciences and other exploration and development companies.

The literal and figurative goal, he says, is what it's always been … since the last great Crew Change.

"To ensure that the next generation will leave no stone unturned."

Poland
from page 14

Energy, which gives us the option to earn 70 percent and six licenses, about a million acres," Archibald said. "This is a very inexpensive option to target the Silurian-aged shales in the Baltic Depression."

Archibald laid out a list of reasons to like this type of play:

- Optioning it cheaply.
- Great gas demand in the EU market, unlike current North American conditions.
- Great fiscal terms in Poland.
- Operationally advantaged with easy access, flat terrain.

"All the things we like in upside (are) in this type of play," he said, "so taking that expertise out of North America to screen some international ventures is the right near-term move."

The company's efforts in progress in Poland include seismic activity, which was scheduled to finish in fourth quarter of 2009. The initial well is predicted to go down in first quarter 2010.

Seeking the Next Barnett

Developing a thriving shale gas industry in the EU likely will entail a game plan that differs significantly from the U.S. experience.

The large firms that initially shunned the shale in North America are leading the charge overseas, while it's the small independent companies who are the backbone of the domestic unconventional shale gas plays. These flexible wildcatter-type companies are a rarity in most European countries as are the myriad service companies that drive down costs via competition.

Additionally, it's speculated that the relative lack of open land for development due to population density has the potential to pose problems for European activity. This type play often requires the drilling of numerous wells.

Just don't expect these type obstacles to temper the current enthusiasm.

"People are searching everywhere, looking for the Barnett of Europe," Thomas said. "There's a lot of licensing going on, and some wells have been drilled, but we're really in the early licensing of plays.

"There's large gas demand in Europe and declining indigenous gas supplies," Thomas noted, "and we need to provide encouragement for development of unconventional gas."

Global Update
from page 12

gas production.

It put plans for further drilling in the basin on hold.

WEHT Gippsland Exploration?

Not many years ago, it looked like a rush of exploration was about to hit the offshore Gippsland Basin, located in the Bass Strait off the southeast coast of Australia (EXPLORER January 2004).

The basin has generally good seismic coverage. There's a ready market for production. The region is dotted with currently producing oil and gas fields, up to 75 kilometers offshore. A network of pipelines extends into the area.

And drilling goes on, mostly for development or for testing the extent of producing sands. But exploration hasn't boomed.

In 2008, Gippsland player Nexus Energy Ltd. plugged and abandoned a deep exploration well in the basin after evaluation showed a series of water-bearing sands.

The biggest news out of the Bass Strait recently is an apparent success drilled in the Bass Basin, in Tasmanian waters, by a joint venture of Origin Energy Ltd., AWE Ltd. and two partners. Their Rockhopper 1 well was cited as a new field discovery, with evaluation ongoing in January, as Origin Energy announced it was preparing to sidetrack the Rockhopper-1 well.

Wireline logging operations there have been completed and the well plugged below the kick-off point.

The sidetrack is designed to appraise the hydrocarbons encountered to date by intersecting the main reservoir sections approximately 1.3 kilometers south and down-dip from their penetration in Rockhopper-1, to assist in assessing the volume of oil and gas discovered in Rockhopper-1.

Bass Strait Exploration Company Ltd. of Melbourne and partners hold exploration rights in part of the eastern Gippsland Basin. The company is looking at additional seismic and has made noises about moving exploration into deeper water.

Extending production into a new part of the basin could be just what Gippsland needs to jump start activity.

Online Voting Opens March 3

Balloting for AAPG officer candidates for the 2010-11 term will be available March 3 and will close May 15 at 11:59 p.m. CDT.

While electronic balloting is available to all members a paper ballot also will be sent.

Survey and Ballot Systems, which handles the AAPG election, has a coded system where only one ballot per person is counted, with the paper ballot taking precedent if both are submitted.

Candidate biographies and individual information continue to be available at www.aapg.org.

This year's slate involves candidates for four positions:

President-Elect

❒ **Ernest A. Mancini**, Texas A&M, College Station, Texas.

❒ **Paul Weimer**, University of Colorado, Boulder, Colo.

Vice President-Sections

❒ **Marvin D. Brittenham**, EnCana Oil & Gas (USA), Denver.

❒ **Charles A. Sternbach**, Star Creek Energy, Houston.

Treasurer

❒ **James S. McGhay**, Mid-Con Energy, Tulsa.

❒ **James W. Tucker**, Saudi Aramco, Dhahran, Saudi Arabia.

Editor

❒ **Ashton F. Embry**, GSC, Calgary, Canada.

❒ **Stephen E. Laubach**, Bureau of Economic Geology, University of Texas at Austin.

Rio Technical Award Winners Announced

Winners for the best oral and poster presentations at the recent AAPG International Conference and Exhibition in Rio de Janeiro have been announced.

The awards will be presented during the opening session at the next AAPG Annual Convention and Exhibition, set April 11-14 in New Orleans.

Those to be honored are:

Gabriel Dengo Memorial Award
(best paper)

▸ Pedro V. Zalán, with Petrobras in Rio de Janeiro, for the paper "Stretching and Thinning of the Upper Lithosphere and Continental-Oceanic Crustal Transition in Southeastern Brazil."

His co-authors are Maria do Carmo G. Severino, João Alberto B. Oliveira, Luciano P. Magnavita, Webster U. Mohriak, Rogério C. Gontijo, Adriano R. Viana and Peter Szatmari, all with Petrobras.

Ziad Beydoun Memorial Award
(best poster)

▸ Paul Markwick, Mohamed Raddadi, Lauren Raynham, Steve Tomlinson, Emma Edgecombe, Dennis Rowland, Robert Bailiff, Amanda Galsworthy and Neil Wrobel, for the poster "The Evolution of the South Atlantic Hinterlands from the Late Jurassic to Recent: Mapping Stage Level Changes in Source-to-Sink Relationships."

All authors are with Getech Group, Leeds, England.

Clint Moore will present his paper, "Pioneering the Global Subsalt-Presalt Play: The World Beyond Mahogany (USA) Field," at the upcoming AAPG Annual Convention and Exhibition in New Orleans.

By the way, 'pre' and 'sub' differ

Advancements Push 'Salt' Plays

BY LOUISE S. DURHAM, EXPLORER Correspondent

You can call it subsalt exploration, presalt exploration or whatever makes you happy.

Just don't forget to call exploration beneath salt bodies a big deal.

These plays are not new, yet the announcement of the giant Petrobras-operated Tupi field presalt oil discovery in 2006 offshore Brazil in the Santos Basin triggered major excitement in the E&P community and elsewhere.

Boasting indicated reserves of as much as eight billion barrels of oil equivalent, Tupi represented the biggest find since the 13 billion barrel Kashagan Field was discovered six years earlier in 2000.

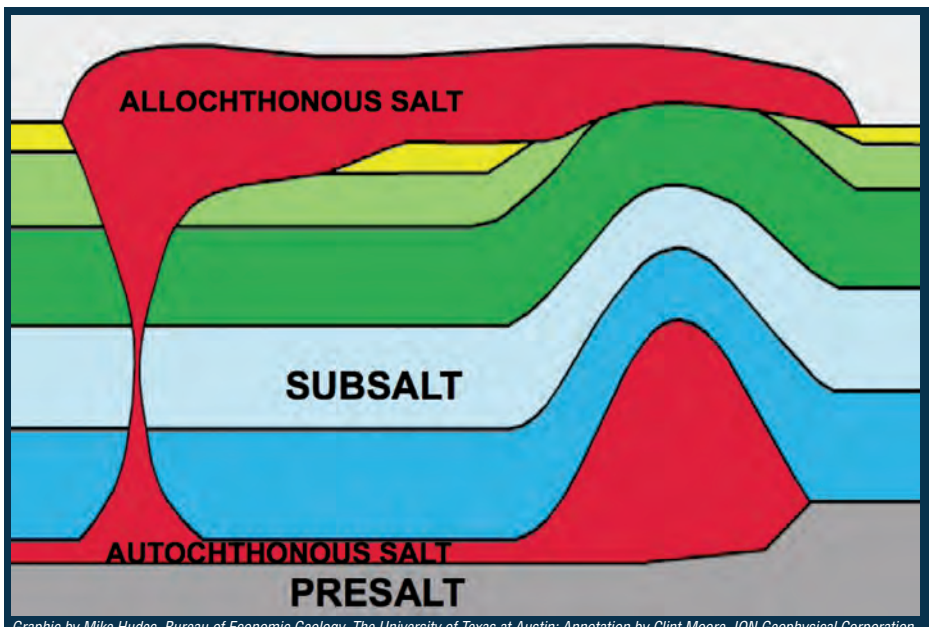

MOORE

Today, offshore Brazil has become a hot-spot for presalt exploration, with discoveries becoming almost routine.

It's common to hear subsalt and presalt used interchangeably – but that's not necessarily proper. Or even correct.

AAPG member Clint Moore, vice president of corporate development at ION Geophysical Corp., described the differences in a paper he gave at the recent 2009 AAPG International Conference and Exhibition in Rio de Janeiro:

- Presalt – exploring beneath an autochthonous salt layer that overlies stratigraphically **older** rock.
- Subsalt – exploring beneath an allochthonous salt layer that overlies stratigraphically **younger** rock.



Graphic by Mike Hudec, Bureau of Economic Geology, The University of Texas at Austin; Annotation by Clint Moore, ION Geophysical Corporation
A graphic representation of subsalt vs. presalt.

Presalt plays have been explored and developed for many decades, according to Moore, who noted the earlier plays usually were under somewhat thin, continuous salt beds – the kind that aren't particularly challenging when it comes to seismic imaging and drilling operations.

As salt feeders migrate into slightly higher density overlying sediments, the resulting domes, ridges, walls or other type structures that are formed often create significant hydrocarbon traps.

This is particularly common in the subsurface of the deepwater regions of the Gulf of Mexico.

On the downside, these are highly complex structures that play havoc with seismic imaging.

Simply put, seismic waves have a tendency to scatter into multiple paths when traveling through low-density salt. The imaging process may not be able to adequately deal with this scattered energy, ultimately resulting in incorrect information about prospective formations below the salt.

First Steps

The Gulf of Mexico might be viewed as the industry's training lab for subsalt exploration – and Moore, who worked the Gulf plays, has been a part of the industry's subsalt story from its beginning.

In his Rio talk, titled "Pioneering the Global Subsalt-Presalt Play: The World Beyond Mahogany (USA) Field," he noted that during the early 1980s – the general consensus among industry explorationists was that salt occurrence in the GOM was, for the most part, vertical – therefore, when drilling into salt it was assumed that the mass was a dome.

Early wells drilled into subsalt deposits failed to penetrate any significant thickness of reservoir quality rock beneath salt, leading many explorers to concur that the GOM subsalt plays

See **Subsalt**, page 24

Think outside the computer screen.

Choose from over 50 exciting field seminars, short courses and online programs all designed with the goal of helping you explore and better understand the science of this industry. Please see the AAPG website for complete descriptions and registration information. Below are the highlights of courses coming up very soon. Make your plans now before seats get filled!

Short Courses:

MAY 11-13
Essentials of Subsurface Mapping
Location: Houston, TX
Instructor: Richard Banks

MAY 17-18
Reservoir Engineering for Petroleum Geologists
Location: Houston, TX
Instructor: Richard G. Green

MAY 19-21
Fundamentals of Petroleum Geology
Location: Houston, TX
Instructor: Stephen L Bend

Field Seminars:

APRIL 17-22
Deep-Water Siliciclastic Reservoirs, California
Location: Begins in Palo Alto and ends at the airport in San Francisco, California
Leaders: Stephan Graham and Donald R. Lowe

APRIL 24-30
Clastic Reservoir Facies and Sequence Stratigraphic Analysis of Alluvial-Plain, Shoreface, Deltaic, and Shelf Depositional Systems
Location: Begins and ends in Salt Lake City, Utah
Leader: Thomas A. Ryer

MAY 16-21
Play Concepts and Controls on Porosity in Carbonate Reservoir Analogs
Location: Almeria Region, SE Spain, begins and ends in Las Negras, Spain
Leaders: Evan K. Franseen, Robert H. Goldstein, Mateu Esteban

MAY 30 –JUNE 5
Complex Carbonate Reservoirs: The Role of Fracturing, Facies and Tectonics
Location: Begins in Naples and ends at Rome International Airport (Italy)
Leaders: Raffaele Di Cuia, Davide Casabianca, Claudio Turrini

Online Courses:

LAUNCH DATE APR 1
Biomass Energy Basics – A Renewable Energy Certificate Course
Instructor: Theresa Coffman

VARIABLE, SELF-PACED
How to Find Oil and Gas Information on the Internet
Instructor: Bill Crowley

E-Symposia:

FEB 11
Predicting Gas Hydrates using Pre-stack Seismic data in Deepwater GOM
Instructor: Dianna Shelander

FEB 25
Creativity in Exploration
Instructors: Ted Beaumont, Douglas Strickland

Last Chance:

MARCH 5
Petroleum Geology for Financial Professionals
Location: London, UK
Instructor: Ted Beaumont

FEB 22-26
Winter Education Conference
Location: Houston, TX
Instructors: 15 expert instructors in 12 practical courses

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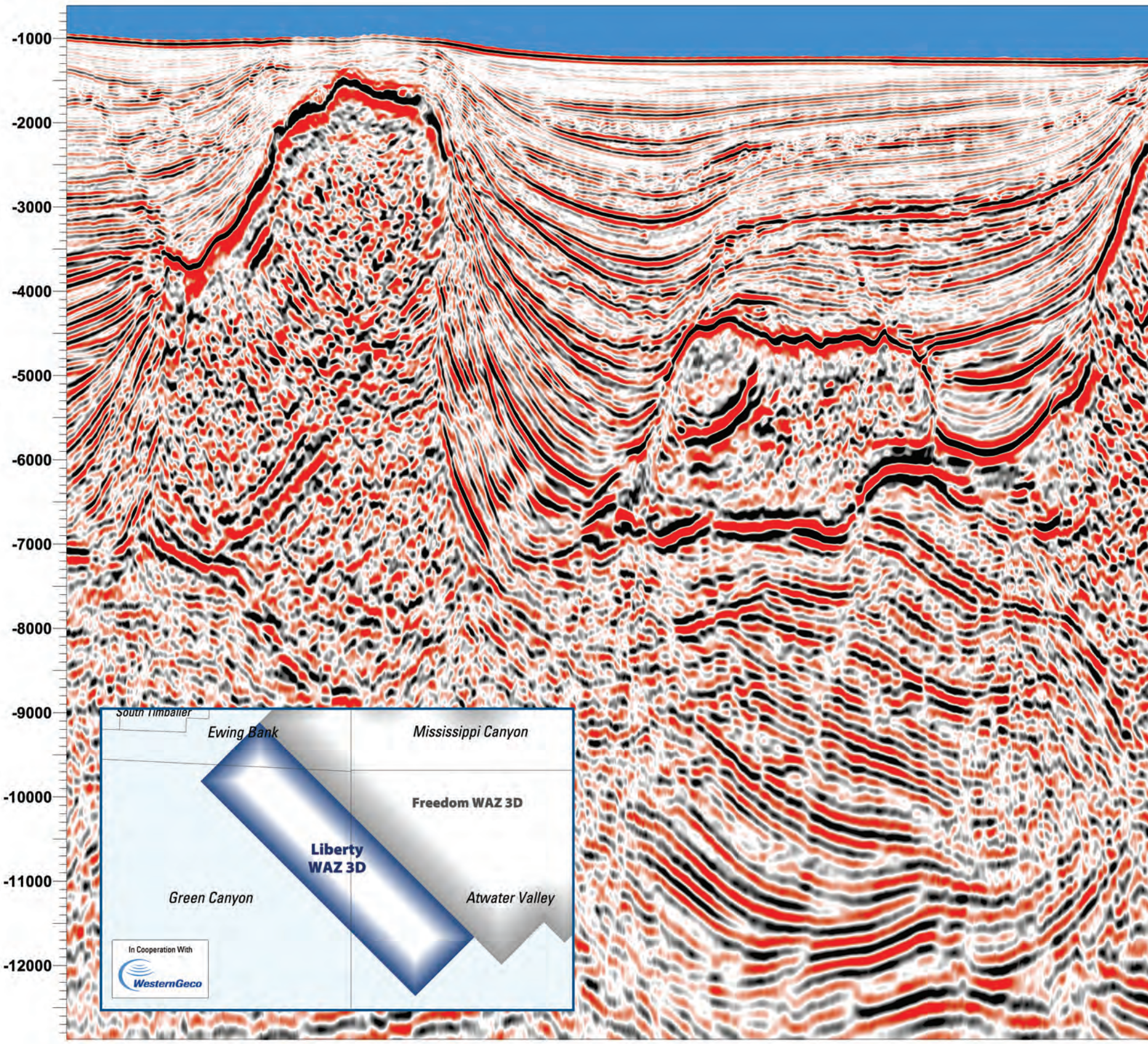

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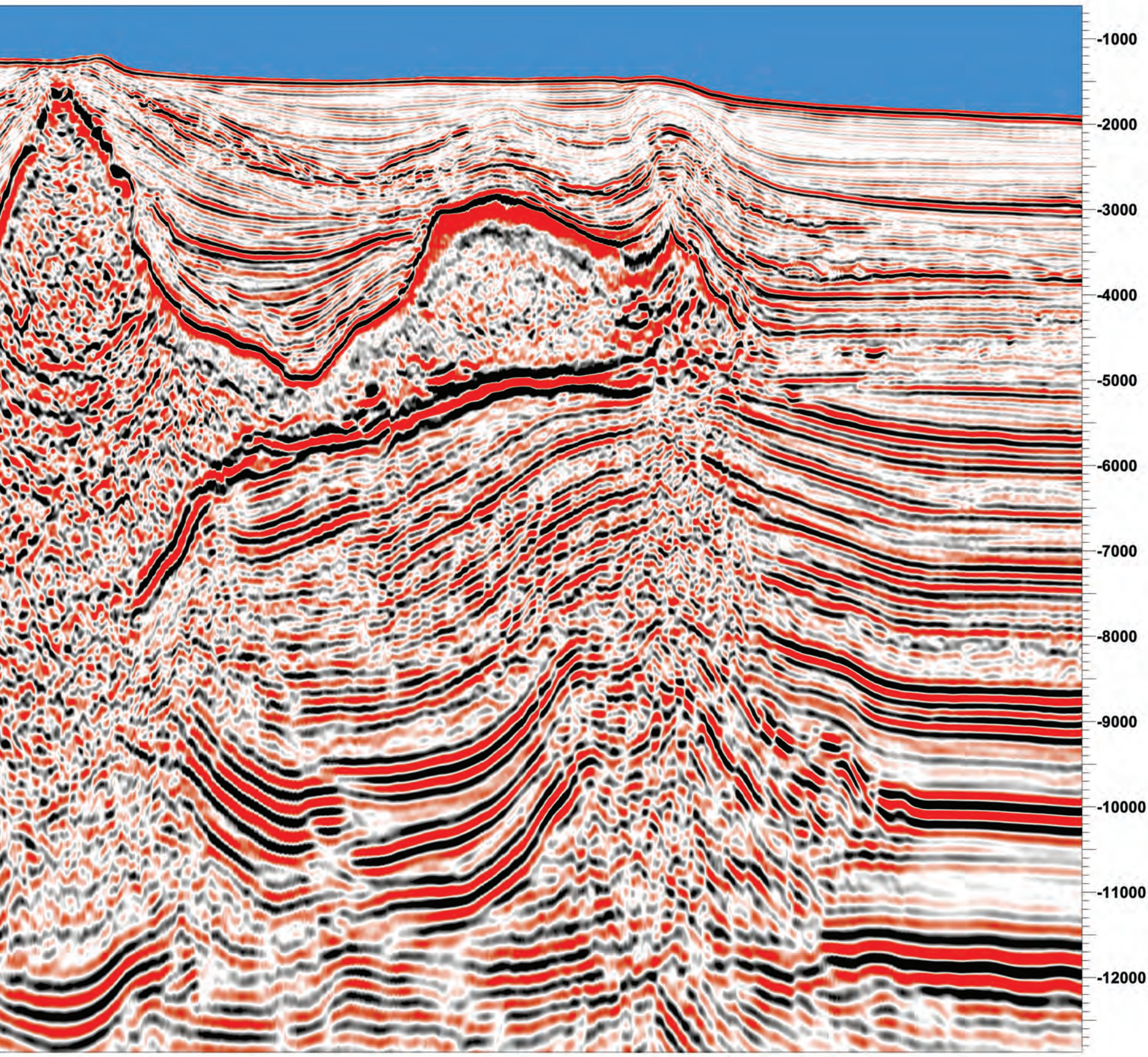

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Subsalt
from page 20

weren't particularly prospective.

But industry people as a rule aren't influenced by naysayers, and the majority continued to believe – and to keep exploring.

Moore was a senior geologist at Diamond Shamrock in 1985 when the company and partners drilled a structural prospect with amplitude across the structure at South Marsh Island Block 200. Unexpectedly, the well drilled through 1,000 feet of salt and 1,500 feet of shale before going through a thousand feet of highly porous and permeable sandstone.

The dry hole was significant in that it proved high quality reservoir rock could exist beneath salt in the Gulf, prompting Moore to refer to the event as a "discovery moment."

In 1993 the lid blew off the GOM subsalt play when Phillips (operator) Anadarko and Amoco drilled the discovery well at the sizeable Mahogany field. The discovery garnered considerable attention even in the mainstream press, and the field subsequently became the first subsalt field to produce in the Gulf. In 2005 the Mahogany Field had produced 25 million BOE, according to the U.S. Minerals Management Service.

Moore, Anadarko's Mahogany discovery geologist, noted that Phillips bid on Mahogany armed only with 2-D data. After acquiring a 3-D survey, the company used its just-developed prestack depth migration imaging algorithm on the data to acquire a sufficiently-improved image of the geologic section beneath the salt to position the location of the wildcat well.

The 'In' Play

Once gaining legs via Mahogany, the subsalt became the "in" play – despite the fact that imaging was relatively sub-par owing to the lack of computational power to run the algorithms required to more accurately image the target reservoirs.

"Since its inception, the greatest challenge for the subsalt/presalt play concept has been explorers' difficulty in imaging the seismic data below and around salt in order to accurately locate the potential structures," Moore said.

"As a result of recent major advances in seismic processing algorithms and computer processing speeds, explorers can now see subsalt/presalt images much more clearly," he said. "And the most progressive are applying these latest technologies to more salt basins globally.

"A confluence of technological advancements led primarily by rapid increases in computation speed – allowing for both attendant decreases in cycle time and the inclusion of higher frequency data – have caused reverse time migration, or RTM, to provide much clearer images of subsalt structures," Moore added.

"We're also evaluating the utility of RTM," he said, "not only as a tool for determining reservoir structures but also for assessing the fluid contents within them."

While the earlier depth migration imaging efforts at Mahogany inferred possible structures below the salt, Moore emphasized that today's RTM results allow for optimal well placement because of the superior images of the salt and the subsalt structures. The availability of better raw data to use in advanced RTM processing also plays a major role in RTM success.

Reverse time migration became commercially viable in all phases of the imaging sequence in 2008, according to Moore. The RTM algorithm was first introduced in the early 1980s.

The mere mention of "algorithm" may send some folks running for cover, so Moore proffered a basic definition for RTM.

"When seismic waves move through rock layers they bounce around in all directions," he said. "Prior to RTM our algorithms assumed simplistic single-bounce propagation from the surface to the reflector and back to the surface.

"Reverse time migration uses the fundamental seismic wave equation that governs propagation of waves in the earth, thus resulting in a more accurate image," Moore noted.

"Unlike other approaches, RTM makes virtually no assumptions or 'short cuts' in the way it describes the behavior and geometry of seismic waves moving through the earth."

Dawn Patrols

New technology may bring new potential, but it's clear that the salt players' performance hasn't been too shabby using "old-fashioned" tools.

The discovery and development of presalt/subsalt fields over the years, using pre-stack depth imaging applied to data acquired via short offset 2-D and narrow azimuth 3-D seismic surveys has resulted in significant production and reserves.

If you're not impressed, just wait.

"This represents a fraction of the potential that will likely be globally discovered using new RTM technology," Moore asserted.

"We're really at the dawn of the pursuit of this play, now that we can image the geology more clearly and accurately," he said. "Now that we have a new tool to see under and within the salt basins of the world, it will make a huge difference in terms of the amount of oil and gas that can be discovered in these complex geological basins.

"I think," Moore added, "there are billions of barrels of oil and trillions of cubic feet of natural gas yet to be discovered under salt."

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Article highlights include:

Clinoforms impact fluid flow

Håvard D. Enge and John A. Howell

Two ancient river-dominated delta systems were digitally mapped to recreate their clinothem and clinoform geometries in geocellular reservoir modeling software. Laser scanning was used to build virtual outcrops for quantitative reservoir characterization as well as for input in reservoir modeling.

Compartmentalization: The key component

Khaled R. Arouri, Pierre J. Van Laer, Mark H. Prudden, Peter D. Jenden, William J. Carrigan, and Adnan A. Al-Hajji

Petroleum inclusions exist in parts of the Ghazal Field, and their discovery in this traditional gas play was unexpected. Compartmentalization preserved light oil along the southern rim of the field that appears to have escaped flushing by subsequent charges that occurred further north.

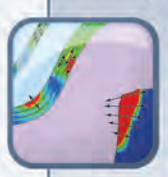
A model of submarine channel evolution

Ian A. Kane, Vicky Catterall, William D. McCaffrey, and Ole J. Martinsen

Lateral surface tilting, a common deformation style in extensional settings, has a significant effect on channel evolution with the potential to affect the resultant configuration of the channel system. This study in the Pliocene of the Nile Delta slope has architectural implications for other systems.

A powerful tool for subsurface deformation

Kevin J. Smart, David A. Ferrill, Alan P. Morris, Barron J. Bichon, David S. Riha, and Luc Huyse



Geometry and strain evolution from the Big Brushy Canyon monocline were tracked so that fold shape, cumulative extension, and layer-parallel shear strain could be compared to field observations. This geomechanical modeling approach provides a powerful tool for site-specific subsurface deformation prediction.

The Geophysical Corner is a regular column in the EXPLORER, edited by Bob A. Hardage, senior research scientist at the Bureau of Economic Geology, the University of Texas at Austin.

GEOPHYSICALCORNER

New targets are waiting

Good News: A Dim Future Isn't Bad!

BY ALISTAIR BROWN


BROWN

Everyone has heard of a bright spot – a high seismic amplitude caused by hydrocarbon. Much oil and gas has been found by drilling anomalous bright reflections, particularly in younger sediments.

But how many explorationists have found hydrocarbon with dim spots – a reduction in amplitude caused by hydrocarbon?

When water in a porous rock is replaced by hydrocarbon, the acoustic impedance (the product of density and velocity) of the rock universally reduces in magnitude. The effect diminishes with depth, but the change is always in the same direction – a decrease in impedance.

The observed seismic phenomenon depends on the impedance of the reservoir, and on the magnitude of the impedance change, relative to the impedance of the embedding rock.

* * *

Compaction of sand and shale causes their acoustic impedances to increase with depth and age (figure 1), but these impedances normally increase at different rates. For young, shallow clastic rocks, sands typically have lower impedance than shales – but for older, deeper clastic rocks, sands typically have higher impedance than shales.

Note the crossover of the shale impedance and sand impedance curves on the figure.

When a water sand has lower impedance than its embedding shale, changing the water in the pores to hydrocarbon increases the sand-shale impedance contrast and thus increases seismic reflection amplitude, which results in a **bright spot**.

When a water sand or other reservoir rock has higher impedance than its embedding shale, replacing the water in the pores with hydrocarbon decreases the impedance contrast, and the result is a **dim spot**.

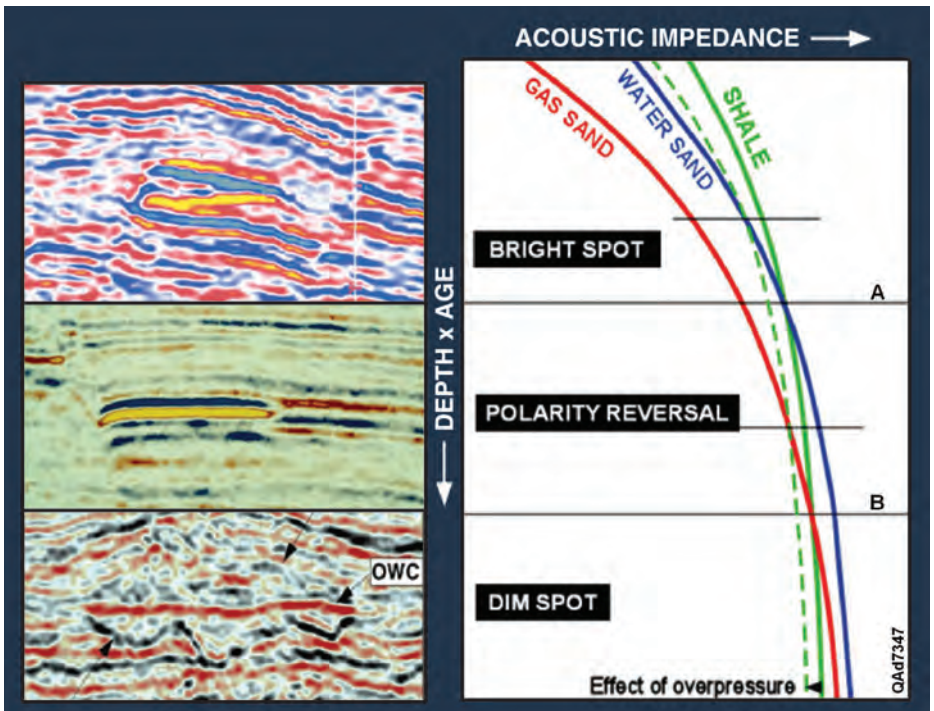


*Figure 1 – (Right) Generalized curves showing how the acoustic impedances of gas sands, water sands and shales increase with depth. **Bright spots** occur above depth **A**, where there is a large contrast in shale and gas-sand impedances but a modest difference between shale and water-sand impedances. **Polarity reversals** occur between depths **A** and **B**, where water-sand impedance is greater than shale impedance but gas-sand impedance is less than shale impedance. **Dim spots** occur below depth **B**, where the three impedance curves converge and there are only small impedance contrasts between shale and either type of sand, brine-filled or gas-filled. (Left) Examples of seismic reflectivity for each of the three sand/shale impedance regimes, taken from AAPG Memoir 42 (sixth edition).*

The figure shows normal compaction curves for one local area. Because these are trends generally applicable to many areas, no numbers are assigned to the axes. The crossovers of the curves cause the phenomena **bright spot**, **polarity reversal** and **dim spot** to occur in this ordered sequence with increasing depth. Thus, once an interpreter has established one seismic hydrocarbon indicator (say, polarity reversal), this depth-dependent trend provides a valuable guideline for the nature of the hydrocarbon indicator that should be expected at a deeper or shallower target.

Notice on the figure there is a data example illustrating each of the seismic reflection phenomena. The dim spot example illustrates a strong oil-water contact reflection, but the reflection from the top of the oil sand is low amplitude and difficult to see because it is a dim spot.

The above argument means that dim spots occur deeper than bright spots, but they are a well-understood and valid type of seismic reflection phenomenon. Some hydrocarbon has been found with dim spots, and some hydrocarbon fields have been developed using dim spot phenomena. Thus we must recognize the existence of dim spots and start looking for more of them!

As we do so, however, we must realize that dim spots are difficult to recognize and to apply because:

- Deeper seismic data have poorer resolution.
- Deeper seismic data often have a lower signal-to-noise ratio.
- It is more difficult to be confident of an interpretation involving reduced amplitude than an interpretation involving increased amplitude because more ambiguities are involved in low-amplitude data.

* * *

An interpreter must consider all the characteristics of hydrocarbon reflections, not just dimness (or brightness), and in AAPG Memoir 42 (sixth edition) the author lists 17 characteristics observable on seismic data that are properly displayed on a workstation. In addition there are special techniques like AVO and converted waves that provide additional evidence.

We all know that the easiest oil and gas has been found and that future exploration challenges must involve innovative technological applications and smarter explorationists. Dim spots are thus an opportunity of the future, and the emerging generation of geoscientists should accept the challenge.

The future of direct observation of hydrocarbons may be dim indeed!

(Editor's note: Alistair Brown, a consultant from Allen, Texas, is a former editor of the EXPLORER's Geophysical Corner and in 2009 received an AAPG Distinguished Service award.)

Online Registration Open for New Orleans ACE

Online registration is open for this year's AAPG Annual Convention and Exhibition – and the sooner you register, the more money you may save on registration fees.

This year's ACE will be held April 11-14 at the Ernest N. Morial Convention Center in New Orleans – AAPG's first annual meeting there in 10 years.

The theme is "Unmasking the Potential of Exploration and Production," and a technical program offering more than 400 oral and nearly 600 poster presentations has been prepared to provide the latest in geoscience expertise and insight.

Also offered will be a variety of forums, special sessions and luncheon speakers who will give up-to-the-minute talks on issues that impact the entire industry and profession.

Complementing the technical program will be a large exhibit hall, featuring more than 200 exhibits from industry leaders, independent operators, education providers and more.

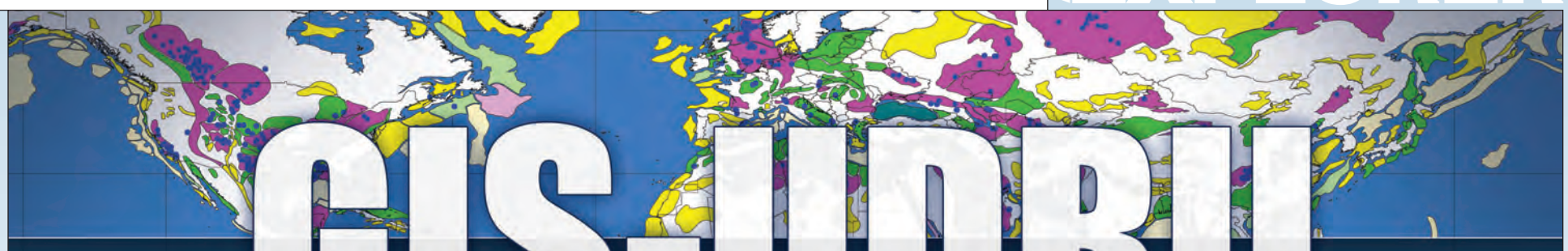
Some of the highlights include:

- The opening session and awards ceremony, featuring an address by AAPG President John Lorenz and the honoring of this year's awardees, led by Sidney Powers Memorial honoree L. Frank Brown Jr. and the Michel T. Halbouty Outstanding Leadership awardee Patrick J.F. Gratton.
- This year's Discovery Thinking forum, the third presentation of the AAPG 100th Anniversary Committee's program recognizing "100 Who Made a Difference."
- The All-Convention Luncheon, featuring a talk by industry expert Robert "Bobby" Ryan, vice president of global exploration for Chevron Global Upstream and Gas. The topic is "Beyond Zone Six: The Imperative of Unconventional Thinking."
- The Michel T. Halbouty Lecture, featuring Aubrey K. McClendon, chairman, chief executive officer and director of Chesapeake Energy Corp. His topic will be "Shale Gas and America's Energy Future."
- Fourteen short courses and 10 field trips that will visit locations as varied as the fluvial-deltaic submarine fan systems of Arkansas, coastal Louisiana and the Bahamas.
- A special ticketed social gathering at the National World War II Museum – "An Evening With 'America's Greatest Generation'" – will be offered Tuesday, April 13.

The entire technical program was mailed to members in December, and is available online.

Also available online is registration, and doing this on or before Feb. 16 can result in up to $200 in savings.

For more information go online to www.aapg.org/neworleans.



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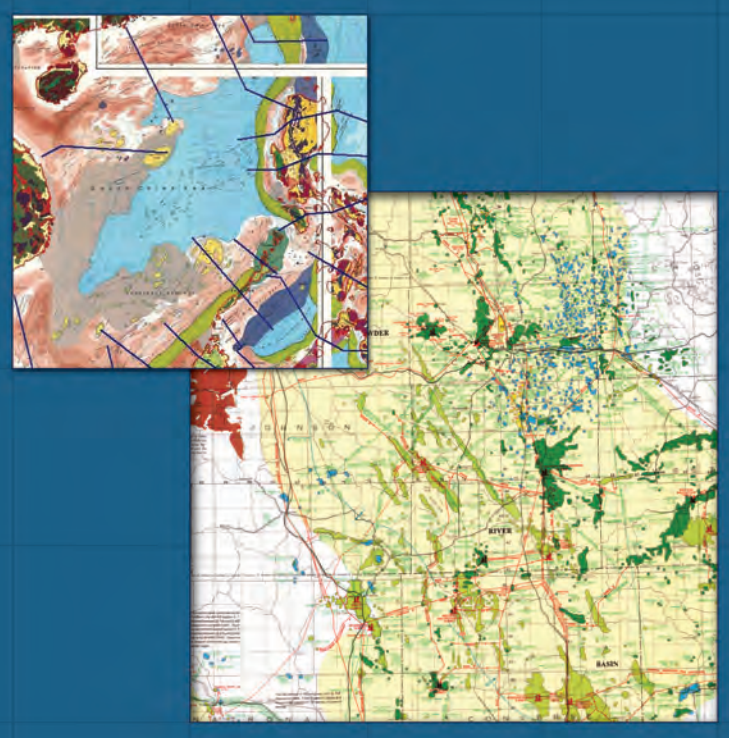
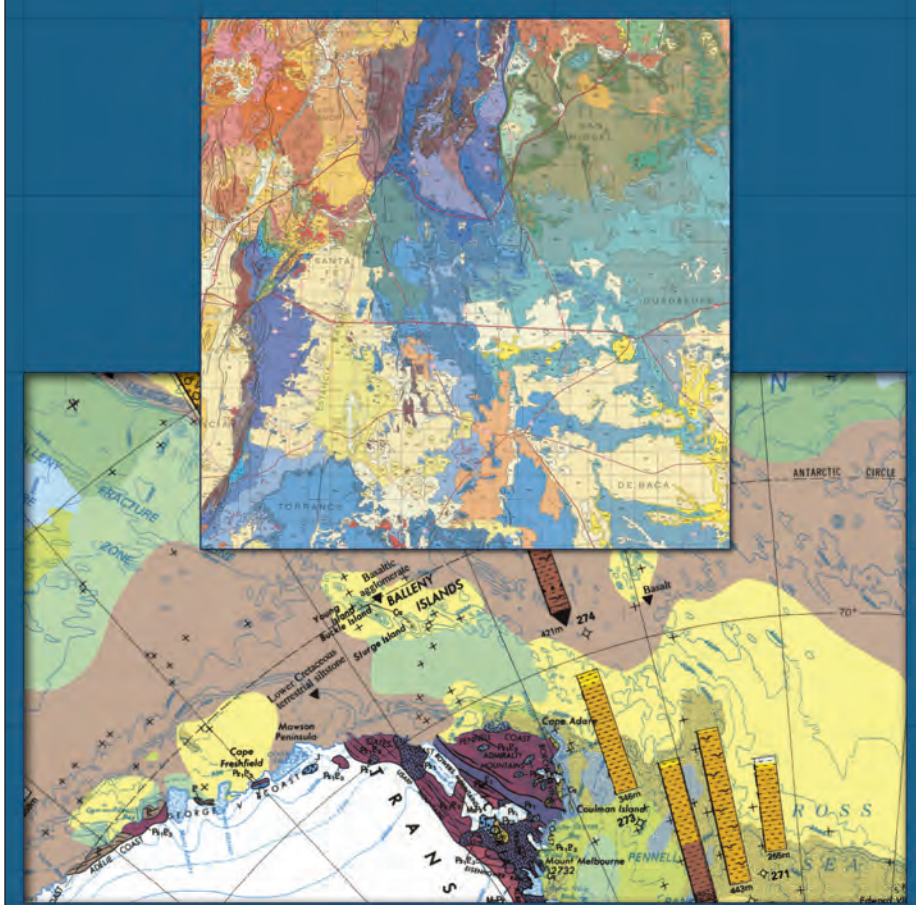


With thousands of maps and database entries GIS-UDRIL is an expansive project that provides digital products and services to upstream petroleum companies.

All atlases and databases are now available with the use of a browser or GIS desktop and are available online.

Our latest release includes:

- Atlas of Vectorized Structure Maps of Oil and Gas Fields: Louisiana - Update
- Salt Domes of South Louisiana – Update



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Contact Christina Hall for more information on GIS-UDRIL.
Email: gis-sales@aapg.org • Phone: (918) 560-2680 • www.datapages.com

(Editor's note: David Curtiss, head of AAPG's Geoscience and Energy Office in Washington, D.C., can be contacted at dcurtiss@aapg.org; or by telephone at 1-202-684-8225.)

WASHINGTONWATCH

Climate politics: Looking for Compromise

BY DAVID CURTISS
GEO-DC Director

The U.S. Senate finished 2009 with a triumphant vote on health care legislation. The lengthy and hard fought negotiations needed to secure the 60 votes necessary for passage of the health care bill delayed Senate action on climate change. As senators now turn to this similarly contentious issue, they again face the difficult task of drafting a bill that garners 60 votes.

Senate climate change action is set against results of the Copenhagen climate change summit last December, mostly consisting of feuding and brinksmanship among the delegates and resulting in an accord far short of the envisaged global treaty.

> Narrower responses rather than broad ones offer a clue to the path forward in the Senate.

But *The Economist*, a London-based newspaper long supportive of climate change action, opined in its Dec. 30, 2009, issue that the Copenhagen summit achieved two important advances:

- First, developing countries agreed to the accord, signaling willingness to cut emissions and accept an international framework of monitoring. What that ultimately means is uncertain, but it is a step toward bridging a deep disagreement between developed and developing countries.

- Second, the summit demonstrated that the complexity of climate change may require a series of narrowly focused solutions rather than one global solution. The world has tried – and failed – at Kyoto and Copenhagen to develop such a grand strategy. Accepting this fact "could mark a new pluralism in climate politics, allowing coalitions of the willing to form for specific purposes – such as slowing deforestation, or stemming emissions from shipping."


CURTISS

Both of these issues are important to senators. But the second one – favoring narrower responses, rather than broad ones – offers a clue to a path forward in the Senate.

* * *

The House passed its climate change bill – The American Clean Energy and Security Act of 2009 (see August 2009 EXPLORER), which included:

- A federal renewable energy standard of 15 percent by 2025.
- Boosts to energy efficiency requirements.
- A federal cap and trade system to curb greenhouse gas emissions.
- Programs to deal with the effects (mostly financial) of transitioning to a clean energy economy.

The Senate climate change bill was introduced by **Sens. John Kerry** (D-Mass.) and **Barbara Boxer** (D-Calif.) in late September 2009. Titled The Clean Energy Jobs and American Power Act, the legislation includes two principal parts:

- Initiatives for pollution reduction, transition and adaptation to climate change. These measures include efficiency standards, new R&D and technology programs, and job creation programs.
- A federal cap and trade system to curb greenhouse gas emissions.

Politics is at the core of the Senate debate on climate change, with a federal cap-and-trade system the biggest obstacle.

There are six Senate committees with jurisdiction for this legislation. Boxer, chair of the Environment and Public Works Committee, passed the bill through her committee. Republican committee members boycotted the legislative review and vote.

Kerry, as principal bill author and

Continued on next page

Curtiss Named to DPA Panel in New Orleans

Geo-DC Director David Curtiss will be among the panelists speaking at the Division of Professional Affairs luncheon in New Orleans during the AAPG Annual Convention and Exhibition.

Curtiss, reporter for the Explorer's Washington Watch column, will be joined by five others in a discussion of topics ranging from DPA bylaws to position papers to tax issues to the role that DPA plays in the current energy arena.

The luncheon will be held Tuesday, April 13, in the La Nouvelle Orleans Ballroom at the Ernest N. Morial Convention Center.

Joining Curtiss on the panel will be:

- **John Dolson**, director of DSP Geosciences and Associates, Coconut Grove, Fla., and a former vice president of AAPG.
- **Lynn N. Hughes**, a federal judge in Houston and AAPG's current Distinguished Lecturer on Ethics.
- **Peter R. Rose**, senior associate with Rose and Associates in Austin, Texas, and a former president of AAPG.
- **M. Ray Thomasson**, founder and owner of Thomasson Partner Associates, Denver, and a former president of AAPG.
- **Scott Tinker**, director of the Bureau of Economic Geology and the state geologist of Texas, Austin, and the immediate past president of AAPG.

Continued from previous page

chair of the Foreign Relations Committee, wanted swift movement on the bill. But he quickly recognized he did not have the support of 60 senators and reached out to **Sens. Joe Lieberman** (I-Conn.) and **Lindsay Graham** (R-S.C.) to forge a new framework for climate legislation.

This framework was sent to **President Obama** in early December, ahead of the Copenhagen summit, and includes a 17 percent emission reduction target by 2020. It ties emissions cuts to expanded oil and natural gas on the nation's federal lands and outer continental shelf, expansion of nuclear power, continued use of coal and other provisions. The authors indicate that this framework is a "work in progress," but foreshadows the concessions needed to secure 60 votes.

But as The Hill reported in November, **Sen. Max Baucus** (D-Mont.), chair of the Finance Committee, and **Sen. Jay Rockefeller** (D-W.Va.), chair of the Commerce Committee, represent states with significant coal interests and are less eager for rapid action. Rockefeller was quoted saying, "Most of the country doesn't know what cap-and-trade is. They have no idea. I would say half the Senate have no idea what cap-and-trade is and could not explain it."

He doesn't want to see the Senate act until July.

Sen. Blanche Lincoln (D-Ark.), chair of the Agriculture Committee, faces a tough re-election campaign and indicated she wants the Senate to focus on jobs and the economy.

Finally, **Sen. Jeff Bingaman** (D-N.M.), chair of the Energy and Natural Resources Committee, is a supporter of cap-and-trade and introduced such legislation in the 110th Congress. But in this Congress he has shepherded a bipartisan energy bill through his committee, The American Clean Energy and Leadership Act of 2009.

This bill is more narrowly focused on energy. It emphasizes clean energy technology development, a renewable electricity standard, efficiency, energy work force development consumer protections, and smarter planning. It does not include a cap-and-trade system, and Bingaman has resisted the idea of adding such a provision to this bill because of the political problems it invites.

* * *

It is too early to tell what final Senate legislation will look like, but the health care debate offers two lessons: Do not underestimate the ability of Senate Democrats to craft a bill that secures 60 votes, and do not be surprised if that final bill looks very different from what was originally proposed.

Mustering the votes for a cap-and-trade system is possible but difficult. A more focused approach – such as Bingaman's, perhaps augmented with select provisions from the Kerry-Boxer bill – offers the surest path to 60.

The political calculus for Democrats in Congress and the White House will be whether to hold out for what they desire, or take what they can get.

As Election Day approaches, when politicians are held to account by the people they represent, the words of legendary House Speaker Joe Cannon will surely be ringing in their ears:

"Nearly all legislation is the result of compromise."

Innovative use of technology

Stef Paramoure Named TOTY

L. Stef Paramoure, an eighth grade science teacher at the Oak Run Middle School in New Braunfels, Texas, has been named the 2010 AAPG Earth Science Teacher of the Year.

Paramoure, who also heads the school's eighth grade "science team" effort, is considered a pioneer in the use of innovative technology through podcasting – she has created her own podcast series called "Science Alive."

She was nominated by the Gulf Coast Association of Geological Societies. They said of her, "Her passion for turning kids on to science has driven her to deploy a wealth of instructional strategies that engage students both physically and mentally … Stef is always searching for ways to make her lessons more memorable, exciting and relevant to her students.


PARAMOURE

"Her motto is 'Knowledge is power – give some, get some.'"

AAPG's TOTY award, funded annually by the AAPG Foundation, is a $5,000 prize that will be split into two parts: half is designated for Paramoure's personal use, and half goes to Oak Run Middle School for educational use under Paramoure's supervision.

She also will receive an all-expense paid trip to the AAPG Annual Convention and Exhibition in New Orleans on April 11-14, where she will be presented with her award at the All-Convention Luncheon.

An interview with Paramoure will be featured in the April convention issue of the EXPLORER.

SPOTLIGHT ON...

Searching for Rocks, Listening for Bells

By BARRY FRIEDMAN
EXPLORER Correspondent

People still talk about "the moment."

It happened last year in Denver, right at the start of the AAPG annual meeting's awards ceremony. Susan Landon, already an AAPG Honorary Member, past treasurer and much-honored and respected leader, was about to be feted again, for service to the House of Delegates.

Everyone knew that.

What everyone didn't know was how Landon, who because of a near-fatal accident in 2005 must move hesitantly and cautiously, if at all, would be able to walk up stairs and cross the stage to receive her award.

What everyone also didn't know was that a ramp was offered so she could avoid the few but steep steps.

Nor that when offered the ramp, she asked, "What is everyone else doing?"

When told others would be walking up and then back down the steps, she simply said, "Then that's what I'm going to do, too."

And that's what she did. The ramp went unused. And the crowd, ready to cheer for her anyway, found themselves standing and cheering for a moment that was much more special.

One shining moment, indeed.

"I don't think that it was as big a deal as it turned out to be," she said, months after the ceremony; still she was unprepared for the reaction.

"I thought all the tears were gone, but I had a few more as I crossed the stage (with the help of her husband) to accept the award."

Her award presentation was not supposed to be the highlight of the conference, but then Susan Landon was not supposed to be able to walk up to get it.

The trip to the podium took longer than she would have liked, each step feeling like the first – but that she was there at all, that she was taking them at all, was all that mattered.

After the Fall

Landon suffered a compounded traumatic brain injury while skiing in February 2005.

The details are grim, jarring and perhaps overwhelming – even in retrospect. It only took a moment for one chapter of her amazing life to end and another, perhaps even more amazing chapter, to begin.

So first, the facts.

She broke her right arm, hit her head, damaged the cerebral cortex; she lost consciousness, and had significant oxygen deprivation, a large hematoma that became infected from surgery and major abdominal surgery to relieve misdirected fluid injections.

Once medical personnel got her down the mountain – and they had to use an ambulance because the weather was too bad for a helicopter – she had already been without oxygen, had lost too much blood. A transfusion was administered, but paramedics missed the vein and seven pints of blood were inadvertently put into her stomach cavity.

The Moment: Scott Tinker presents the award in Denver to Susan Landon.

There were incisions, infections, her abdomen had to be opened (with an 18-inch incision), her skull had to be opened up twice and a 3½-inch diameter of the skull was removed for six months, then replaced.

"People who ski can close their eyes and imagine my falling. I have fallen a lot – just ask those I have skied with," she says now, smiling.

But this was no ordinary fall. Landon suffered TBI, or Traumatic Brain Injury.

"The accident was not a problem, because I don't remember it," she said.

But when she awoke from a coma, remarkably three months later, there were other problems.

"I knew some things were fuzzy, but I was amazed," she recalls. "I began to recognize people but did not retain any memory of what had happened."

It was then she realized there was, in her words, a story to be told – a story about waking up in a hospital room and feeling like you've lost, literally lost, months of your life.

Her 'Guardian Angel'

But Landon doesn't want to dwell on the pain of the past – because through the ordeal, a beautiful and unexpected truth emerged.

Her story proved not to be about tragedy and sorrow, but a story about friendship, patience and a profession she loves.

That story starts with her friend – her best friend – Robbie Gries, a past president of AAPG who was instrumental in Landon's recovery.

"I don't know," Landon says, "what I would have done without her in this journey. Robbie was my guardian angel."

After six months in hospitals and 16 months in rehabilitation facilities,

Continued on next page

Continued from previous page

Landon lived with Gries for 12 months while undergoing four-six hours of onsite therapy each day; Gries served as her nighttime caretaker.

Landon's memory does not include any of the experiences of the first 12-16 months after the accident.

But the connection between the two longtime friends became something special.

In fact, Landon's first trip after her accident was to an RMS-AAPG meeting in Billings, Mont. – two years after the accident – but one of her favorite outings was the one to Robbie's nearby wedding, if only because Landon knew Gries' fiancé was "the one."

Gries says throughout the ordeal Susan never lost her temper and never lost her sense of humor, even through intense therapy and atrophying muscles.

So what kind of person comes through that? What kind of woman in that kind of pain with that kind of setback (and hundreds of thousands of dollars worth of medical bills) can still coax her uncooperative body out of a chair in Denver and walk to a podium … and smile?

And do so with out whining, depression or self-pity?

When you answer ***what***, you then begin to understand ***how***.

Gries says it's simple – or maybe it's not.

"Just a genuine love of life," Gries said of her friend. "Susan is an observer of people and life – and even more so now."

Landon has much time to think, but she has concluded, "I would have to say that the most important thing I have learned is to slow down," which may have been a lesson forced on her, but one that she now embraces.

She still walks with a cane – her mind's desire to do more is constantly challenged and balanced by physical realities – but she feels that she is getting her strength back.

"I am not really working yet, (but) I try to make it two or three times a week to the office," she said.

She says she is starting on new projects – but starting them slowly. "I am not 100 percent," she adds.

The Beat Goes On

And here's the bottom line: Landon says her pleasures still derive from going to geology meetings and reminding herself of her love for the profession.

"Going to meetings is one step you can take to stay in touch with what has happened," she said. "If you are lucky, you'll pick up something. Perhaps you'll find something to set off the bells."

"She understands all the geology she hears and she recognizes most all of her old friends and acquaintances," says Gries, "this gives her immense pleasure."

Landon, who also is past president of the American Geological Institute, has begun traveling again with her husband, astronomer Dick Dietz (she once said the two had "heaven and earth covered") and Gries says she can see her friend's smile coming back.

Landon, who wrote in a letter to *The Outcrop* magazine that she wished to thank "everyone who thought about me," says she knows part of her recovery has been the result of the well wishes of an industry and a profession she loves and occasionally prods.

She knows that it was the support and contributions of those friends – from not just the region or the country, but the world – that enabled her to have exceptional therapy and rehab facilities.

Those many gifts are now being paid forward; Landon isn't ready to retire. Her core is strong and determined.

"We, as professionals, have done a good job of speaking and, more to the point, done a good job of getting off our butts to help the public understand" what we do, she said.

Her favorite quote about the industry is, "The best geologist is the one who looks at the most rocks."

It's good to know that she's out there looking again, searching for the rocks, listening for the bells – even if she's out there with that damn cane.

"I love geology, always have and always will," she said. "I am just a little slower."

Photo courtesy of Robbie Gries

Susan Landon and Robbie Gries, studying the rocks in Montana – Susan's first post-injury trip.

(Editor's note: Regions and Sections is a regular column in the EXPLORER offering news for and about AAPG's six international Regions and six domestic Sections. Contact: Carol McGowen, AAPG's Regions and Sections manager, at 1-918-560-9403; or e-mail to cmcgowen@aapg.org.)

Students and YPs See Global Profile Rise

By CAROL McGOWEN, Regions and Sections Manager

AAPG's network of Student membership continues growing worldwide. Student Chapters, Student Expo job fairs, the Imperial Barrel Award and Field Immersion programs all provide career development, support and encouragement to these young explorationists.

Student AAPG members comprise fully 21 percent of the total global membership, with Student membership in the international Regions exceeding Student members in U.S. Sections by 43 percent (4,860 to 2,768).

Having invested in themselves for the past eight to 10 years, the value to industry of these young professionals with fresh ideas and fresh approaches to finding oil and gas has increased significantly.

But once these Student members graduate from university, their whereabouts are frequently unknown. When no longer enrolled in college, AAPG Student membership is no longer a viable option – and without a forwarding e-mail address, AAPG cannot maintain the same level of intellectual and scientific support of university graduates in transition, who are seeking or have found professional geoscience employment.

Jan. 1	2006 Students	2006 Total Mbrs		2010 Student	2010 All Mbrs	
Pacific	64	1,648	3.9%	279	1,784	15.6%
Rcky Mtn	173	3,018	5.7%	464	3,475	13.4%
Mid Cont	161	2,087	7.7%	500	2,538	19.7%
Eastern	316	2,360	13.4%	590	2,616	22.6%
Gulf	259	8,935	2.9%	683	9,196	7.4%
Southwest	114	2,301	5.0%	252	2,470	10.2%
US SECTIONS	**1,087**	**20,349**	**5.3%**	**2,768**	**22,079**	**12.5%**
Africa	767	1,719	44.6%	1,665	2,550	65.3%
Asia Pacific	643	2,227	28.9%	1,667	4,147	40.2%
Canada	112	1,609	7.0%	159	1,617	9.8%
Europe	431	2,725	15.8%	933	3,535	26.4%
Latin America	77	769	10.0%	258	1,000	25.8%
Middle East	32	475	6.7%	178	699	25.5%
INTL Regions	**2,062**	**9,524**	**21.7%**	**4,860**	**13,548**	**35.9%**
TOTALS	**3,149**	**29,873**	**10.5%**	**7,628**	**35,627**	**21.4%**

Global percentage of student members. Source: AAPG Member Services

Going global: AAPG President-Elect Dave Rensink (back row, center) joined SEG, EAGE and SPE leaders to share career advice with students and young professionals from 36 countries during IPTC Education Week, held in December in Doha, Qatar.

Who Needs YPs?

This is where AAPG Young Professionals come in.

Now that you've landed that first job and are working hard to make your mark and demonstrate your worth, where do you go to find an existing network of peers with whom you can share experiences and compare ideas?

Join AAPG and join the Young Professionals committee.

AAPG membership is a prerequisite – and YPs say AAPG membership is invaluable to their careers.

YPs also quickly learn that through AAPG, lasting relationships are created along with career opportunities that otherwise might have been missed.

Besides networking and new friendships, AAPG YPs benefit from mentoring. With immediate access to some of the world's best scientists, YPers find older AAPG members eager to answer questions and open career doors.

But YP also offers the chance to ***be*** a mentor, adopt a Student Chapter, help a recent graduate polish their job interviewing skills and navigate the job market.

AAPG YP groups are being formed worldwide, and each AAPG Section and Region is encouraged to host its own YP committee.

So think of YPs as one great on-ramp to your geoscience career. Connect with other YP subcommittees via the AAPG Young Professionals Web site, LinkedIn group or Facebook group.

Get involved today by contacting Natasha Rigg, chair of the Young Professionals Committee, at natasha.rigg@anadarko.com, and find out what YPs are all about.

WWWUPDATE

You are there

Relive Denver – Virtually

By BOGDAN MICHKA, AAPG Web Producer

Denver 2009 was a great AAPG convention, and now, thanks to a slew of videos that were produced onsite, you can still benefit from the experience – even if you weren't there.

The online video material exists thanks to the volunteer efforts of graduate students and AAPG members Lauren Michel, Stephanie Thomas and Meredith Faber. They did a wonderful job tracking down and interviewing people like past AAPG president Scott Tinker, Chevron executive Bobby Ryan and many others, asking them questions:

- About their school and job experiences.
- Soliciting their advice for students and young professionals.
- Probing their visions of the future of the oil and gas industry.

The inaugural series of videos dealt with the interviewees' first involvement in AAPG. Future segments – published almost weekly – will deal with other issues, and will be announced online in the wwwUpdate blog (blog.aapg.org/web/).

The most recent batch of Denver video features AAPG past president Scott Tinker talking about various issues related to petroleum geology and the oil and gas industry. He discusses what he calls the "four Es" – Energy, Environment, Economy and Education – as well as "green" economy and renewable energy; comments on Al Gore's documentary, "An Inconvenient Truth"; and talks about overcoming misconceptions people have about the oil and gas industry.

Tinker and Don Clarke, chair of AAPG's Public Outreach Committee, also talk about the importance of educating the public about geosciences and the industry.

Given the ubiquity of YouTube coupled with the technological benefits it offers to webmasters, it was only logical to publish the videos on AAPG's YouTube channel (www.youtube.com/aapgweb). The YouTube videos also are present in AAPG's Video Vault (www.aapg.org/videos/) together with downloadable versions of the same videos in smaller sizes for both Windows and Macintosh platforms.

The AAPG Video Vault page has also been updated with a new collapsible panel design to reduce scrolling while showcasing the active video and hiding others. Technological progress demands sacrifice, and to use the new Video Vault you need to have a new-ish Web browser (Internet Explorer 7 or later; version 6 is no longer supported). So if you're still stuck in the software past, it's time to upgrade!

AAPG is evolving and embracing the future.

What's Next?

And now, it's almost time for the cameras to start rolling again.

What questions and issues would you like to see addressed during AAPG's upcoming Annual Convention and Exhibition in New Orleans?

What other AAPG members should we try to interview?

Send us your feedback:

- By commenting on our Web site blog.
- On our Facebook wall (facebook.com/pages/AAPG/184190073057.
- By direct message on Twitter to @AAPG (twitter.com/AAPG).
- By e-mail, to aapgwebteam@gmail.com.

INMEMORY

Samuel T. Pees, a well-known author, lecturer, historian and AAPG award winner, died Dec. 27 in Meadville, Pa. He was 83.

Pees was awarded two AAPG Certificates of Merit and, in 1997, the Association's Public Service Award.

* **John M. Browning**, 92
Calgary, Canada, Nov. 14, 2009
Loyd Adolph Carlson, 86
Grand Junction, Colo.
Nov. 1, 2009
Kelly Smith Cawthon, 80
Shreveport, La., Nov. 11, 2009
Louis R. Chaboudy, 59
Houston, Jan. 1, 2009
Francis Milton Groce, 84
Borger, Texas, July 29, 2008
Graham Leslie Hopkins, 59
London, England, Nov. 24, 2009
Samuel T. Pees, 83
Meadville, Pa., Dec. 27, 2009
Jack A. Starkweather, 80
Billings, Mont., Nov. 5, 2009
Ralph Edward Waggoner, 90
Wichita Falls, Texas
Nov. 22, 2009
George Pickney Walker III (EM '65)
Canyon Lake, Texas

(Editor's note: "In Memory" listings are based on information received from the AAPG membership department. Age at time of death, when known, is listed. When the member's date of death is unavailable, the person's membership classification and anniversary date are listed. Asterisk denotes AAPG Honorary Member.)

FOUNDATIONUPDATE

Projects Funding Approved

The AAPG Foundation Board of Trustees, during it's recent meeting in Tulsa, approved financial support totaling $179,476 for various programs.

The specific funding included:

- $120,000 for the AAPG special publications program.
- $34,000 for the AAPG DataPages *Search & Discovery* online journal.
- $15,500 for the University of Nebraska-Lincoln, for its "Exporting Science Educator Field Course GEOL 160 – Geoscience Fundamentals in the Field."
- $9,976 for the Geology Merit Badge program at the 2010 Boy Scouts of America National Jamboree.

The board also announced its appreciation for the 12 percent of AAPG members who voluntarily donated to the Foundation when paying their dues last year. This amounted to over $170,000, which now will be used to provide support for core AAPG programs and new initiatives funded through the Foundation.

The Foundation is a 501(c)(3) tax-exempt charitable organization, established to assist the Association and other organizations with funding to support educational, charitable and scientific objectives that benefit the geologic profession and the general public.

Donors can have confidence in knowing the Board maintains transparency guided by the Foundation's Investment Policy (available online at foundation.aapg.org.

* * *

Officials also announced a new addition to the Foundation Trustee Associates. He is **Scott Cameron**, Shell E&P, Houston.

* * *

To learn about the programs and new initiatives funded through the AAPG Foundation, or to donate, contact Foundation manager Rebecca Griffin at (918) 560-2644; or rgriffin@aapg.org.

Foundation Contributions

General Fund

Anonymous
Lee B. Backsen
Abdel Fatah M. Bakhiet
Barbara Gail Bayne
Albert S. Bonner Jr.
Louis Chapman Bortz
Donald Fred Cardinal
Kenneth W. Ciriacks
Jerry Herbert Clark
Kirby Lee Cockerham Jr.
In memory of Bobby Sid Dubose
Edward Julian L. Davies
Robert W. Esser
William L. Fisher
Thomas A. Fitzgerald
William E. Gipson
Frank W. Harrison Jr.
James Michael Hill Sr.
Peter A. Horst
Michael Sam Johnson
Robert R. Jordan
Raphael V. Ketani
Irvin Kranzier
Jonathan Mark Lester
Robert Lincoln Maby Jr. Estate
Jack P. Martin
John William Mason
In memory of Tom Lyons
Vincent J. McDermott
James S. McGhay
In honor of Herb Davis
William Allen Monroe
Ruth L. Moore Estate
Leslie Owen Niemi
Alison Robbins
Sandra Weil Rushworth
In honor of Susan Landon
Vinton Hubbard Sholl
Dennis M. Sparks
Bill St. John
Richard Steinmetz
Stephen Malcolm Strachan
Paul M. Strunk
Thian San Tee
Andrew Brodie Thomson
Frederic A. Tietz
In memory of Bonnie Ashford
Volker C. Vahrenkamp
F. Paul Wehrle Jr.
Michael R. Wisda
In memory of Paul Carter

Bridge Fund
Shell Exploration & Production

Digital Products Fund
John Wayne Shelton

Centenary College
Henry H. Gordon

Kansas State University
Vincent J. McDermott

University of Kentucky
Vincent J. McDermott

University of Oklahoma
William Wayne Ballard

Virginia Tech
David Ray Grogan

Distinguished Lecture Fund
Eugene Leroy Ames Jr.
William J. Barrett
Thomas R. Marshall Jr.
In honor of Ken Bird

J. Ben Carsey Sr. Memorial Distinguished Lecture Fund
Dorothy Carsey Sumner

Grants-in-Aid Fund
Peter Allen Dea
Linda L. Farrar
In memory of past AAPG officers
Donald Arthur Medwedeff

J. Ben Carsey Sr. Memorial Grant
Dorothy Carsey Sumner

Ike Crumbly Minorities in Energy Grant
Lyle F. Baie

See **Foundation**, page 36

AAPG FOUNDATION

Dissemination of Information...
the AAPG *Bulletin*

The AAPG Bulletin has been delivering quality research to the scientific world since 1917. The first issue contained papers written by the best-known geologists of the day, and included papers on such topics as South America, Europe, and general geologic problems of structure and sedimentation.

Today the Bulletin is recognized worldwide as the leading geologic publication for the dissemination of information concerning the geology and associated technology of petroleum, natural gas and other energy-mineral resources.

YOU can help continue this tradition of excellence – give a gift to the AAPG Foundation Pratt Bulletin Fund.

To learn more visit: http://foundation.aapg.org/bulletin.cfm
Please contact Rebecca Griffin, toll-free 1-888-945-2274, ext. 644 or Alison Robbins, ext. 674 to discuss this opportunity!

Education Conference Starts Feb. 22 in Houston

There's still time to sign-up for AAPG's popular Winter Education Conference, which offers five days of quality geoscience training Feb. 22-26 at the Norris Conference Center in Houston.

Twelve practical courses will be taught by top industry experts and arranged in four concurrent sessions each day.

Courses include:

- Principles of Reservoir Characterization (taught by Jeffrey Yarus).
- Fundamentals of Siliciclastic Sequence Stratigraphy (John Holbrook).
- Seismic Stratigraphy and Seismic Geomorphology (Henry Posamentier).
- Tight Gas Sands (Larry Meckel).
- Understanding Heterogeneity in U.S. Shale Plays (Rich Salter and Rick Lewis).
- Appraising and Developing Coalbed Methane Reservoirs (Creties Jenkins).
- Quantification of Geologic Risk in the Conventional and Unconventional Realm (Gary Citron and Mark McLane).
- "Old" (Pre-1958) Electric Logs: A Quick Review (George Asquith).
- Regional Stress and Reservoir Geomechanics (David Wiprut).
- Image Log Interpretation (Laird Thompson).
- Formation Evaluation of Thinly Bedded Reservoirs (Quinn Passey and Ken Dahlberg).
- Quick Guide to Carbonate Well Log Analysis (George Asquith).

As with past conferences, badges are transferrable for those who can't attend the full week.

For more information and/or to download a registration form, go to http://www.aapg.org/education/wec.cfm, or contact the AAPG Education Department at educate@aapg.org, 1-918-560-2650.

Foundation
from page 34

Eddie David Named Grant
Willard R. Green
In honor of Eddie David
Martin Joyce
Brent A. May
Jerome N. Namy

Norman H. Foster Memorial Grant
John Ernest Lucken
In memory of Norman Foster

Charles B. and Marilyn Fritz Memorial Grant
Richard Dale Fritz

Bernold M. "Bruno" Hanson Memorial Environmental Grant
Dorothy Carsey Sumner

Mruk Family Named Grant
Denise M. Cox
In memory of Anthony Mruk

Wallace E. Pratt Memorial Grant
Dorothy Carsey Sumner

James E. and Elloie B. Wilson Memorial Grant
James E. Wilson Trust

David W. Worthington Named Grant
David W. Worthington

K-12 Education Fund
Bruce S. Appelbaum
John McGregor Barnes Jr.
Ted Cammarata
Peter Allen Dea
Jerlyn Rae Gilmore
David E. Lange
Jack P. Martin
Gary Neil Polasek
Gene E. Richards
In memory of E.T. Hill
John McCarney Sweet
In memory of Roger Markham

Boone Pickens Digital Geology Fund
John Curtis Killinger
The T. Boone Pickens Foundation

Pratt BULLETIN Fund
James Palmer Rogers

Public Service Fund
James A. Gibbs
In memory of Mike P. Braziel

E.F. Reid Scouting Fund
Jeffrey M. Rayner

Eugene F. Reid Dibblee Fund
Jeffrey M. Rayner

L. Austin Weeks Memorial Undergraduate Grant Fund
Peter Allen Dea

Rocknocker: A Geologist's Memoir
(ISBN-13: 978-1-926585604)
By George Devries Klein.
This book reviews the life of George Devries Klein, an immigrant who made it through the American System as a geologist. It chronicles his life from early childhood, graduate school, oil company researcher, university professor, science administrator, and as a geological consultant. Each chapter summarizes key lessons. Book discusses rationale behind research projects George completed. A highly informative read
.
Available from:
CCB Publishing $21.95 U.S.
www.Amazon.com and
www.BarnesandNoble.com

(Editor's note: "Professional News Briefs" includes items about members' career moves and the honors they receive. To be included, please send information in the above format to Professional News Briefs, c/o AAPG EXPLORER, P.O. Box 979, Tulsa, Okla. 74101; or fax, 918-560-2636; or e-mail, smoore@aapg.org; or submit directly from the AAPG Web site, www.aapg.org/explorer/pnb_forms.cfm.)

PROFESSIONAL NEWS BRIEFS

Larry Archibald, to senior vice president-exploration and business development, ConocoPhillips, Houston. Previously vice president-exploration, ConocoPhillips, Houston. (See story, page 14.)

John Bedingfield, to vice president-worldwide exploration and new ventures, Apache Corp., Houston. Previously vice president and managing director-Australia region, Apache Corp., Houston.

Tad Brown, to senior geophysicist-deepwater GOM exploration, Repsol, The Woodlands, Texas. Previously staff geophysicist-Falkland Island exploration, BHP Billiton Petroleum, Houston.

Bret Fossum, to lead geologist, ConocoPhillips (Russia), Moscow, Russia. Previously principal geologist, ConocoPhillips, Houston.

Nick Harris, to associate professor, Department of Earth and Atmospheric Sciences, University of Alberta, Edmonton, Canada. Previously research associate professor, Colorado School of Mines, Golden, Colo.

Thomas G. Harris has been appointed to the board of directors for Falcon Oil and Gas. Harris is president, BlackRock Exploration and Production, Houston.

William Houston, to senior geologist, PTTEP Public Company Ltd., Bangkok, Thailand. Houston, who currently serves as AAPG's elected secretary, previously was principal, Silverback, Denver.

Deborah Humphreville, to director global accounts, AspenTech, UK. Previously vice president global accounts, IHS, Weybridge, England.

Tom Maher, to vice president and managing director-Australia region, Apache Corp., Houston. Previously exploration manager, Apache Egypt, Cairo, Egypt.

C.Y. McCants, to head of geoscience, Petrofac Production Solutions, London, England. Previously lead geology and geophysics, new ventures manager-SE Asia, Petrofac (Malaysia), Petrofac Energy Developments, Kuala Lumpur, Malaysia.

Ed Mellor, to vice president exploration, Davis Petroleum, Houston. Previously exploration manager, Penn Virginia Oil and Gas, Houston.

Jennifer Melster, to senior geologist, Apache Corp., Houston. Previously senior geologist, Apache (Canada), Calgary, Canada.

Chris Oglesby, to chief geologist, Pearl Energy, Bangkok, Thailand. Previously reservoir management team lead, Chevron Thailand, Bangkok, Thailand.

Meredith Rhodes Carson, to geologist, managing member, Geofuels, Madison, Wisc. Previously geologist, BP, Houston.

Yusak H. Setiawan, to exploration manager, Murphy, Indonesia. Previously exploration project lead, Hess Corp., Indonesia.

MEMBERSHIP&CERTIFICATION

The following candidates have submitted applications for membership in the Association and, below, certification by the Division of Professional Affairs. This does not constitute election nor certification, but places the names before the membership at large.

Any information bearing on the qualifications of these candidates should be sent promptly to the Executive Committee, P.O. Box 979, Tulsa, Okla. 74101.

Information included here comes from the AAPG membership department.

(Names of sponsors are placed in parentheses. Reinstatements indicated do not require sponsors.)

Membership applications are available at www.aapg.org, or by contacting headquarters in Tulsa.

For Active Membership

Arkansas
Woolsey, Jamie Ann, Sedna Energy, Fort Smith (D. Zachry, C.F. Moyer, C.R. Sampson)

California
Phillips, Christopher Clyde, Tidelands Oil Production, Long Beach (D.D. Clarke, S.W. Prior, C.P. Henderson)

Colorado
Kaiser, Kimberley Robyn, Questar E&P, Denver (M.W. Longman, C.E. Bartberger, R.E. Newhart); **Mize-Spansky, Kristine Lynn**, Encana Oil & Gas USA, Denver (J.J. Cavens, H.E. Leetaru, D.A. Uhl)

Connecticut
Jansen, Gregory B., Commonfund Capital, Wilton (reinstate)

New Mexico
Vesterby, Bruce John, Prospect Geotech, Albuquerque (P.A. Catacosinos, J.C. Lorenz, R.L. Bowers)

Oregon
Elliott, William S., University of Southern Indiana, Ashland (J.D. Beuthin, K. Bohacs, L.J. Suttner)

Texas
Cavallerano, Ed, Baker Hughes, Houston (D.B. Parnell, E. Manuel, T.L. Wright); **Cey, Bradley Donald**, Chevron, Houston (B.J. Katz, M. Kacewicz, J.A. Curiale); **Elenburg, Kagen B.**, Swan Production, Fort Worth (R.G. Pitzer, J.T. Thomas, D.G. Abraham); **Hamid, Osman H.**, Schlumberger, Houston (E. Saudale, K.D. Hemsley, A.A. Ibrahim); **Hedrick, Carroll Lee**, consultant, Bryan (reinstate); **Melster, Jennifer Ackerman**, Apache Corp., Houston (J.F. Polasek, J.H. Hightower, B.J. Uszynski); **Morales, Miguel Fernando**, Chevron North America E&P, Houston (F.E. Abegg, D.H. Roeder, R.E. Bischke); **Noack, Amy Kathryn**, EOG Resources, Midland (M. Grammer, D.M. Cox, J.M. Party); **Ogiesoba, Osareni Christopher**, Bureau of Economic Geology, University of Texas at Austin, Austin (U. Hammes, R.G. Loucks, W.A. Ambrose); **Pelton, John Michael**, ExxonMobil, Houston (D.F. Kosich, S.R. May, J.R. Markello); **Randall, Kelli Willson**, Marathon Oil, Houston (J.D. Fortier, C.J. Jump, W.D. Zogg); **Woodhouse, Bruce Alan**, consultant, Houston (reinstate)

West Virginia
Sager, Melissa Lynne, Dominion Exploration & Production, Jane Lew (D.M. Reif, C.A. Edmonds, A.G. Johnson)

Australia
Mair, Kyle David, Eni Australia, Perth (B.A. Jackson, G. Ellis, J.D. Gorter); **Power, William Laurence**, Geomechanics International, Perth (F. Fernandez-Ibanez, L.N. Dell'Angelo, D.A. Castillo)

Brazil
Freitas, Igor Sarmento, Chevron, Rio de Janeiro (J.A. Nava, C. Rassi, M.W. Dixon)

Canada
Derochie, John-Paul Michael, Schlumberger Canada, Calgary (P.A. Fothergill, M.A. Lamb, A. Dalir Abdinia); **Rafuse, Quinton M.**, Avere Energy, Calgary (T.X. Homza, D. Schoderbek, K.B. Johnston)

England
Abu, Clara Ifeyinwa, WesternGeco, West Sussex (G.J. Hampson, M. Ala, M. Francis); **Aplin, Andrew C.**, Newcastle University, Newcastle Upon Tyne (S.R. Larter, P.D. Heppard, J.E. Iliffe); **Grosu, Florian A.**,

Continued on next page

Statements Reflect Dues Hike

Annual AAPG billing statements, featuring a modest increase in both dues and mail surcharge fees, are being prepared and will be mailed in March.

The Executive Committee approved the dues increase based on increased operating and publishing costs and to help ensure continuation of current programs. It is the first dues increase since July 2007.

The mail surcharge is increasing to $20 for all members who receive mail outside of North America. This fee has not been increased since 1985, when it was first implemented; postage and printing costs, however, have continued to escalate.

AAPG continues to offer our members the graduated dues structure, so that no member is denied participation based on their income. That means:

- Level 1 dues will now be $90.
- Level 2 dues are $45.
- Level 3 dues are $22.50.

Members must qualify for the reduced levels, based on their annual personal gross income. Student dues will remain at the $10 rate, and Chevron will continue its support as the corporate sponsor of the Student Sponsorship Program.

All Active and Associate members will be billed at Level 1 rate – however, they may request the qualifying lower level on their statement and must initial the form as proof of their eligibility.

Another significant change, members with North America mailing addresses who choose to receive the BULLETIN in hardcopy (print) will be charged a mandatory $10 mail surcharge. The default delivery method remains online with annual CDs; this, of course, is at no additional cost to the member.

For all addresses outside North America, the mail surcharge will remain mandatory for Levels 1 and 2 (regardless of BULLETIN delivery method). Also, members paying levels 2 and 3 will once again have the option(s) to purchase one (or both) monthly publication(s) for additional hardcopy and postage fees.

Continued from previous page

Karachaganak Petroleum Operating, London (V.P. Wright, S.J. Beavington-Penney, F. Marchini); **Lodola, Domenico**, Neftex Petroleum Consultants, Abingdon (D.M. Casey, W.M. Ahr, A. Davies)

France
Fregene, Tseyi John, Total E&P, Roissy CDG Cedex (G.O. Oboh, O.A. Ikeneku, A.O. Okeahialam)

Malaysia
Foley, Michael J., Shell Malaysia Exploration & Production, Miri (R. Franssen, M. Wiemer, M.J. Mahaffie Sr.)

New Zealand
Laurenson, Joshua James Noel, consultant, Renwick (C.R. Mills, R.P. Brand, W.L. Leask)

Niger
Makery, Moustapha Salaou, Societe Nigerienne de Cimenterie SNC, Malbaza (E.F.C. Dike, A.O. Akinpelu, M.S. Wonkoye)

Nigeria
Alibe, Mohammed Bukar, Oriental Energy Resources, Abuja (C.P. Vihristencu, J.M. Bruso Jr., I.P. Wright); **Anyisire, Ogheneoweware**, Hyundai Heavy Industries, Effurun Warri (S.O. Akande, N.B. Niyi-Afolabi, O.J. Ojo); **Ashiedu, Joseph Chukwudi**, Schlumberger, Lagos (A. Cutts, R.N.E. Basorun, M.H. Akpojivi); **Bomai, Abdullahi Dan-Asabe**, Nigerian National Petroleum Corp., Lagos (G.M. Gillis, J.B. Blankenship, D.R. Cook); **Falobi, Emmanuel Omoniyi**, Nigerian National Petroleum Corp., Lagos (M.D. Bako, A.O. Idowu, M.A. Agbuza); **Inenemo, Abdulwahab Usman**, Addax Petroleum, Lagos (A.O. Akinpelu, K.A. Kanu, K.A. Ojoh)

Suriname
Amstelveen, Melissa Danielle, Staatsolie Maatschappij Suriname N.V., Paramaribo (G.H. Blake, J.W. Anderson, M.P. Chin-A-Lien); **Kuhn, Sharon Mireille**, Staatsolie Maatschappij N.V., Paramaribo (G.H. Blake, J.W. Anderson, M.P. Chin-A-Lien); **Raghoenath, Vinita Karuna**, Staatsolie Maatschappij Suriname N.V., Flora (G.H. Blake, J.W. Anderson, M.P. Chin-A-Lien); **Robbins, Jessie Louise**, Staatsolie Maatschapij Suriname N.V., Flora (M.P. Chin-A-Lien, G.H. Blake, J.W. Anderson)

Thailand
Zhao, Ming, Chevron, Bangkok (C.A. Oglesby, B.R. Greenhalgh, J. Logan)

Trinidad and Tobago
Chatelal, Sushma C., Petrotrin, Penal (C.L. Archie, C.K. Ramroop, T.A. Steele); **Steele, Therese Anna**, Petrotrin, Santa Flora (C.L. Archie, C.K. Ramroop, S. Heeralal)

Certification

The following are **candidates** for certification by the Division of Professional Affairs.

Petroleum Geologist

Indiana
Jason T. Smith, Core Minerals Operating, Evansville (R.L. Sumner, J.G. Peters, D.R. Swager)

Texas
John Z. Tomich, Noble Energy, Inc., Houston (reinstatement)

Petroleum Geologist and Geophysicist

Colorado
Lon A. McCarley, BETR Resources, Centennial (Society of Independent Professional Earth Scientists)

EMD Leadership Adds Two Councilors

Two new councilors have been added to the EMD leadership team. They are:

Canadian Region
❒ **John (Jock) McCracken**, Egret Consulting, Calgary, Canada.

European Region
❒ **Philippe Safa**, Total, Paris, France.

Contact information and the complete list of EMD councilors can be found online at emd.aapg.org/councilors.cfm.

Editor's note: Letters to the editor should include your name and address and should be mailed to Readers' Forum, c/o AAPG EXPLORER, P.O. Box 979, Tulsa, Okla. 74101, or fax (918) 560-2636; or e-mail to forum@aapg.org. Letters may be edited or held due to space restrictions.

Climate Committee

The AAPG Executive committee did the right thing at its November 2009 meeting when it abolished the AAPG Climate Change Committee, and John Lorenz deserves credit for clearly spelling out the reason why they did so (President's Column, January EXPLORER).

Be assured, AAPG's sister professional/scientific societies that got on the bandwagon of global warming through similar committees and ***staked a position on this issue*** will, in time, pay dearly for their actions. Substantive questions can be raised concerning whether they crossed the line from scientific inquiry to political activism.

George Devries Klein
Sugar Land, Texas

Hooray to AAPG President John Lorenz for "deep sixing" the AAPG Global Climate Change Committee. This was long overdue in my and many other geoscientists' opinion, as we have no business getting involved in a politically charged issue such as climate change (previously named global warming!).

… Billions and billions of dollars of taxpayer money have been wasted worldwide on silly schemes like CO_2 sequestration, cow methane production and carbon footprint studies to name a few.

I was a judge at poster sessions at the 2009 AAPG Eastern Section meeting in Evansville, Ind., and was impressed with many of the posters and presentations from the college students. However, I was struck by the irony of these brilliant young geologists' great talents being wasted on such bogus schemes as CO_2 sequestration instead of being applied to the epic quest for hydrocarbons that help power and maintain the highest living standards ever attained by humankind.

Perhaps the tide has finally turned and the money spigots will be shut off at last on this greatest of modern day boondoggles. One can only hope and pray.

Stephen J. Savoie
Traverse City, Mich.

I just read the article by John Lorenz, the president of an organization of geologists from all disciplines (professors, students, professionals working in petroleum, mining, environmental, water, geothermal, etc.), and he said that we no longer need a committee on global climate change, so it was disbanded. The reasons that the Executive Committee used for closing the climate study committee were:

- Any more study might distract from the public relations that they had already succeeded in forming.
- AAPG is not the keeper of climate change truth.
- Will taking a stand help us find more oil and gas?
- Does either side (in the debate) have a politically winnable argument?

They said no to all and dismissed the committee.

I am appalled and disappointed with this conclusion. We geologists are the most knowledgeable people about climatic cycles throughout the earth's history. And we are observational scientists who can see what is actually happening today. And what is happening is that the earth is not warming now and for the last several years, CO_2 emissions are still climbing, some glaciers are receding, some are growing, the Arctic ice is increasing again (it is cyclic), Antarctica is growing and getting colder – the peeling off of a portion usually means (as with most glaciers) that it is still growing. Glaciers are rivers or fields of ice fed upstream by snowfall. Hurricanes have not increased in recent years and the seas have not risen.

Why don't we professional geologists have the right to state these and other observations for the public to help them understand the earth?

We are Earth Scientists!

Phil Ryall
Bakersfield, Calif.

Why Not?

The recent U.N. conference on climate change sent a clear message: Most of the rest of the world does not share the hysteria over claims of catastrophic effects on our world arising from man-made CO_2 emissions from fossil fuels into the atmosphere.

Indeed, even if CO_2 is a problem, to think we alone can substantially reduce its impact on the climate is ridiculous.

Congress and the administration must face reality and open heretofore banned areas for oil and gas exploration and development. This is not the time for roadblocks (that make) such exploration more difficult and expensive.

We must cease wasting money on bio-fuel subsidies, alternatives such as wind and solar, and abandon imposition of punitive taxes and regulations on our oil and gas industry.

Why not take an alternative energy holiday and let fossil fuels continue to provide our energy needs at far lower costs than alternatives?

Dick Baile
Houston

Washington Watch

Regarding David Curtiss' excellent Washington Watch column in the January EXPLORER: It is good to be able to read a clear review of congressional authorization vs. appropriation and administration's selective application, since most political commentaries omit that critical information. Authorization is only one-third (not even one-half) of the battle! Thanks, David!

Patrick J.F. Gratton
Dallas

CLASSIFIEDADS

POSITION AVAILABLE

Assistant Professor for the Department of Geological Sciences – Seismologist

The Department of Geological Sciences at The University of Alabama invites applications for a tenure-track faculty position in Seismology beginning in August 2010. The position will be filled at the Assistant Professor level. Candidates must have a strong record of research and a Ph.D. in Geology, Geophysics or a related field. We are seeking an outstanding scientist, whose research will a) emphasize the use of seismic data to solve geological problems; and/or b) explore crustal structures, including sedimentary basin structures with using seismic data. The specific areas of research may include, but are not limited to, solid-earth seismology, reflection, refraction and exploration seismology. This is a tenure-track appointment and will be filled at the assistant professor level in August 2010. The successful candidate will be expected to (i) establish a vigorous, externally-funded, research program; (ii) teach geology courses at the introductory level, as well as develop and teach courses at the undergraduate and graduate levels in their field of expertise, and (iii) supervise student research projects at the undergraduate, masters, and doctoral levels. This position expands the Department's Geophysics program and complements other Department programs in Environmental Change and Natural Hazards, Petroleum Geology, Sedimentary Basin Analysis, Structural Geology and Tectonics. The Department of Geological Sciences hosts excellent computational and laboratory facilities in Geophysics.

Applications for this position must be submitted electronically. A list of required documents and application instructions can be found at **https://facultyjobs.ua.edu**. Names and contact information for at least 3 references should be attached as "Other Document." For additional information, contact Dr. Ibrahim Çemen, at **icemen@as.ua.edu** or 205-348-8019, or visit **www.geo.ua.edu**. Applications will be reviewed beginning January 15, 2010, and will continue until the position is filled.

The University of Alabama is an equal-opportunity/affirmative action employer and particularly encourages applications from women and minorities.

* *

Assistant Professor for the Department of Geological Sciences – Molecular Geochemistry

The Department of Geological Sciences at the University of Alabama has an opening for a faculty member in the area of molecular geochemistry. We are seeking an outstanding scientist whose research will explore and elucidate the complex interactions among physical, chemical, and biological processes at the molecular scale. Specific areas of research may include, but are not limited to, geomicrobial processes, interfacial chemistry, bioremediation, and biomarker applications to paleoenvironments/paleo-climatology or petroleum maturation/genesis. This is a tenure-track appointment and will be filled at the assistant professor level in August 2010. The successful candidate will be expected to (i) establish a vigorous, externally-funded, research program; (ii) teach geology courses at the introductory level, as well as develop and teach courses at the undergraduate and graduate levels in their field of expertise, and (iii) supervise student research projects at the undergraduate, masters, and doctoral levels. The Department has an excellent analytical infrastructure which includes electron beam, wet and dry chemistry, and stable isotope mass spectrometry instrumentation.

Applications for this position must be submitted electronically. A list of required documents and application instructions can be found at **https://facultyjobs.ua.edu**; other Document to include contact information for 3 references.

For additional information, contact the search committee chair, Dr. Rona J. Donahoe, at **rdonahoe@geo.ua.edu** or 205-348-1879, or visit **www.geo.ua.edu**. Applications will be reviewed beginning January 15, 2010, but will be accepted until the position is filled.

Prior to hiring, the final candidate(s) may be required to successfully pass a pre-employment background investigation.

The University of Alabama is an equal-opportunity/affirmative-action employer and particularly encourages applications from women and minorities.

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David B. Harris Postdoctoral Fellowship Texas A&M University

The Department of Geology and Geophysics at Texas A&M University, College Station, Texas, is pleased to announce the availability of a postdoctoral fellowship funded through a gift from David B. Harris. The postdoctoral fellowship appointment is two years. Outstanding young scientists who have finished their Ph.D. degree, or who will finish prior to 1 September 2010, are eligible to apply. Research may be in any area of the geological and geophysical sciences. However, we are particularly interested in receiving applications from scientists whose work will contribute to existing research programs in the Department of Geology and Geophysics. Information about the Department can be found at http://geoweb.tamu.edu.

Review of applications will begin January 1, 2010. Applications should include a curriculum vitae, statement of proposed research, and names and addresses of three referees. Applicants are urged to contact a member of the Department of Geology and Geophysics with whom they would collaborate. Electronic submissions are encouraged (lamb@geo.tamu.edu, pdf or Word format) or they can be mailed to: Dr. Will Lamb, Chair of Selection Committee, David B. Harris Postdoctoral Fellowship, Department of Geology and Geophysics, Texas A&M University, Mail Stop 3115, College Station, TX 77843-3115, U. S. A.

Texas A&M University is an affirmative action/equal opportunity employer committed to diversity.

See **Classifieds**, page 42

Classifieds

from page 41

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Western State College of Colorado invites applications for the Moncrief Chair in Petroleum Geology starting August 2010. Teaching responsibilities include courses in the petroleum geology curriculum and structural geology, as well as contributing to the geology core curriculum. A Master's degree in geology or related field and experience in the oil and gas industry is required. Candidates with a Ph.D. will be considered for a tenure track appointment. For full position information and application procedures, visit **http://www.western.edu/jobs**. Applications will be accepted until the position is filled. AA/EOE

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Geotechnical Engineer. Analyze and interpret geological and geophysical information from bore holes, plan and conduct geological and geophysical field studies and surveys, sample collection, or drilling and testing programs used to collect data for application to job sites. Send resumes to Jim Palavan, Geoscience Engineering & Testing, Inc, 405 E. 20th St, Houston, TX 77008.

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Science Leader – Geothermal Energy Stream
Location: Perth, Melbourne or Brisbane, Australia
Salary: $115K to $127K plus Superannuation
Ref. No.: 2009/1049

Science Leader – Unconventional Gas Stream
Location: Perth or Brisbane, Australia
Salary: $115K to $127K plus Superannuation
Ref. No.: 2009/1053

The roles will involve:
- The preparation of Stream and Project research proposals for consideration by the Theme Leader;
- Developing and managing expenditure and revenue budgets for projects within the stream to deliver science outcomes on brief, on time and on budget
- Building productive client/stakeholder relationships;
- Identifying, promoting and exploiting commercial opportunities and managing intellectual property;
- Supporting Research Group Leaders in their performance management and development of project staff.

To be considered you will hold a PhD and documented research in the respective areas of Geothermal Energy or Unconventional Gas (or related fields) and you should demonstrate:
- Expertise in high level science leadership;
- Experience building cohesive teams, inspiring, motivating, coaching and developing staff to their full potential;
- Strong interpersonal and communication skills, including highly effective negotiation and relationship management experience;
- An ability to establish and deliver on major collaborative partnerships with external research providers in a timely and professional manner.
- A commitment to ensuring client satisfaction.

About CSIRO

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) is Australia's national science agency and one of the largest and most diverse research agencies in the world. By igniting the creative spirit of our people we deliver great science and innovative solutions for industry, society and the environment.

CSIRO Earth Science and Resource Engineering (CESRE) is a new research division of CSIRO comprising staff brought together from the former Division of Exploration & Mining and Petroleum Resources. Our research programs cover the breadth of science and technology development across the resource industry including exploration geoscience, mining science and engineering, petroleum engineering and petroleum geoscience. Our staff work closely with industry, government and research stakeholders to deliver world-class science and engineering solutions to this vital sector.

CSIRO prefers all applications to be lodged via our Online Careers Portal (www.csiro.au/careers). *Choose "Positions Vacant" and insert Reference Number* **2009/1049** *(Geothermal) or* **2009/***1053 (Unconventional Gas) where indicated.*

CLOSING DATE: 28 February, 2010

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DIRECTOR'S CORNER

New Year Off to 'Eloquent' Start

By RICK FRITZ

William Shakespeare once said, "Action is eloquence." If this is the case, we have a lot of "eloquence" going on this new year – AAPG's schedule of meetings, workshops, e-symposia, short courses and other professional opportunities and "actions" seems to grow each year.

Of course, this is the time of year we are very busy making final preparations for the Annual Convention and Exhibition (ACE) in New Orleans, and I hope you'll join us there April 11-14.

New Orleans is always a great place to have a convention and the city is ready for us. The New Orleans Organizing Committee, led by general chair Tom Hudson, is culminating months of preparation for a great meeting.

The technical program committee is putting the final touches on what promises to be a very comprehensive technical program. We are expecting 432 oral talks and 570 poster presentations, plus many fine AAPG and SEPM short courses and field trips.

We also have some great speakers lined up, including Bobby Ryan with Chevron and Aubrey McClendon from Chesapeake. Ryan will be the All-Convention Luncheon speaker and McClendon will be the Michel T. Halbouty special lecturer sponsored by the AAPG Foundation.

Exhibition sales have been very active for New Orleans. In fact, the exhibition floor will be very full, and you can look forward to seeing some of the newest technology and geoscience applications.


FRITZ

> AAPG's schedule of professional opportunities and "actions" seems to grow each year.

I always find the exhibit floor an "educational event" in itself, and we thank the exhibitors for their support of the conference.

In addition, the many AAPG and SEPM committees are preparing for the annual meeting. The committees have been very active this year and we look forward to the new ideas and products they will be recommending.

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Before ACE, however, there will be a lot of other activities to showcase our "eloquence":

- AAPG will have a presence at the annual **NAPE** conference, set Feb. 10-12 in Houston. AAPG is a partner in NAPE and we enthusiastically support the expo. AAPG's subsidiary, the International Pavilion, promotes attendance and provides services for international exhibitors at NAPE. The AAPG Executive Committee plans to hold its mid-year meeting this year at NAPE.

- Following NAPE, AAPG has its **APPEX A&D Conference** in London March 2-5. This is a great opportunity to network and look for new ventures, farm-outs and asset opportunities.

APPEX is held in the Business Design Center, and unique this year is a session on "Lessons Learned and to be Learned from Initially Unsuccessful Drilling Ventures" (see January EXPLORER). This will be a great "learning" opportunity.

- Immediately following APPEX is the **GEO Middle East Conference** in Manama, Bahrain March 7-10. AAPG is the secretariat for the technical conference, which is one of the highest quality geoscience conferences in the world.

- In May the **Southwest Section** meeting will be held May 16-18 in Dallas, and the **Pacific Section** meeting is set May 26-28 in Anaheim, Calif.

The Section meetings always offer unique opportunities to review current plays and regional geology.

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You can review and register for any of these meetings online by going through www.aapg.org and clicking on "meeting." Registration already is strong for New Orleans so I recommend you make your plans early – especially your hotel and conference registrations.

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As Nobel Prize-winning author André Gide once said, "One does not discover new lands without consenting to lose sight of the shore for a very long time."

I see AAPG's technical conferences as a great adventure and opportunity in science and thought. I urge you to come and join us this year.

DIVISIONS' REPORT

Divisions to Cooperate on Renewables

By RICHARD C. BOST, Co-Chair, EMD-DEG Renewable Energy Committee

It was refreshing to meet recently with Frank Walles, the Energy Minerals Division president, and Michael D. Campbell, EMD president-elect, to discuss the great opportunities that exist to help the AAPG membership stay abreast of developments within the renewable energy arena and how they may affect the membership and the energy industry in general.


BOST

Like many of you, I question the accuracy and underlying theory of climate change models, but it is evident the world has embraced a future that includes alternative energy sources. We want to be a part of the discussion of how the energy industry evolves.

It also is essential that we keep abreast of the economics and the potential environmental impacts of potential and emerging "renewable" energy sources to know what to believe and what to question, and to make educated judgments what is "sustainable" and what is not – and in turn to assess how new "sustainable" energy developments may affect the petroleum industry and the reconfiguring of the energy industry.

To do so, we would like to encourage the continued involvement of the AAPG membership in identifying appointments to the Renewable Energy Committee.

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First, a refresher of how this new committee came about:

Recognizing the new paradigm we are living in, in 2008, then-AAPG President Scott Tinker requested that alternative energy be included in EMD's purview.

The EMD Executive Committee subsequently discussed forming solar, wind and biofuels committees to meet this request.

During the EMD mid-year teleconference meeting of November 2008, Brian Cardott, chair of EMD's Gas Shale Committee, recommended that one inclusive committee be formed in the EMD called the "Renewable Energy Committee," containing various sub-committees for the various forms of potential energy under development.

This was supported by several members. Mike Wiley, EMD's Gulf Coast Region councilor, suggested that hydropower be included in this committee as well.

Cretis Jenkins, EMD past president (2008-09), reported the formation of this new committee to the AAPG Executive Committee via the 2008 EMD leadership meeting.

Next, as part of EMD's renewed efforts to improve cooperation between the EMD, DEG, DPA and AAPG committees, a joint meeting was held in mid-2009 in Houston of the Executive Committees of all four groups, i.e., representing:

- EMD – **Frank E. Walles**, current president; **Creties Jenkins**, past president; and **Michael D. Campbell**, president-elect.
- DEG – **Michael Jacobs**, current president; **Rebecca Dodge**, past president; and **Mary Kay Harris**, president-elect.
- DPA – **Paul W. Britt**, current president.
- AAPG – **Rick Fritz**, AAPG executive director; and **Norma Newby**, AAPG divisions manager.

The main topic was how the three AAPG divisions and AAPG can work together to develop more joint activities, such as sessions, workshops and short courses. One of the action items that came out of the joint meeting was that it was desirable that DEG and DPA also be part of the Renewable Energy Committee, with co-chairs to handle matters related to EMD and DEG interests.

This joint meeting voted unanimously to create a joint Renewable Energy Committee on July 22, 2009 (see August EXPLORER).

In November 2009, I was appointed as the EMD co-chair of the Renewable Energy Committee, and J. Anne Fix recently was confirmed as the DEG co-chair.

I look forward to working with Anne and others as we discuss the challenges facing the energy industry as it measures and balances the carbon footprint and environmental impacts of the industry with the world's demands for energy.

AAPG members and others outside of AAPG are under consideration for appointment to the various vice chairs in this committee.

To facilitate our discussions, see the organizational structure developed for the EMD-DEG Renewable Energy Committee, at emd.aapg.org/technical_areas/renewableEnergy.cfm.

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As noted above, the principal role of the committee is to advise AAPG membership on the development and associated economics and environmental impact of the various forms of potential alternate energy available on our planet now and in the foreseeable future.

Over the course of the next few months EMD and DEG will be appointing the individuals with the education, background, current knowledge and passion for being part of this committee's mission.

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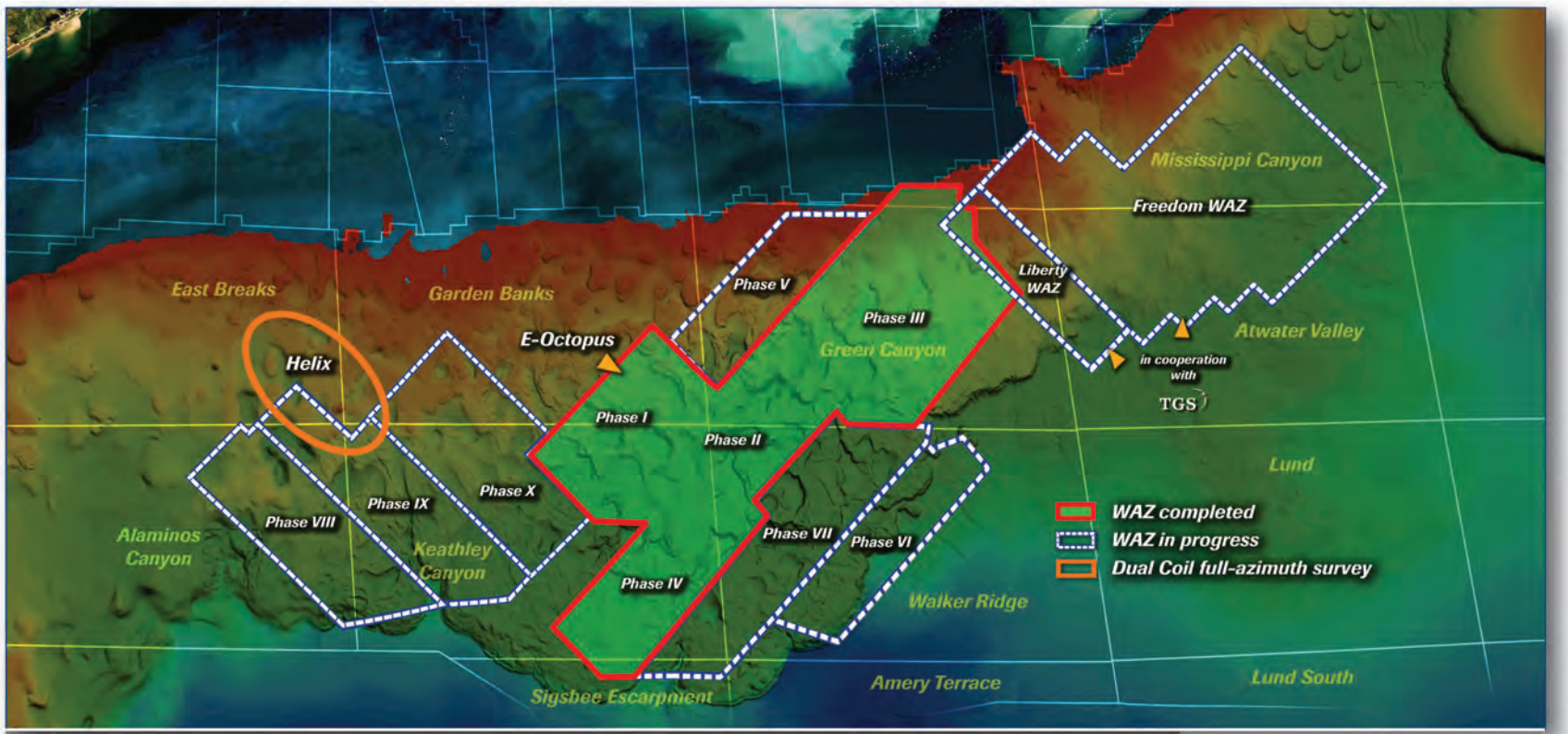

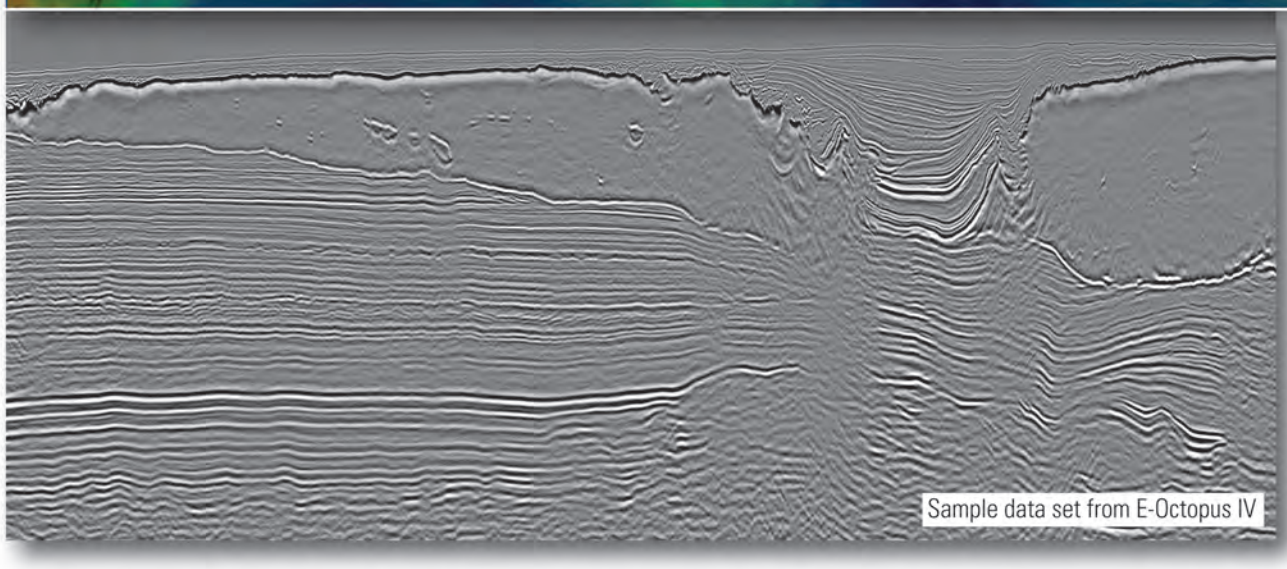

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