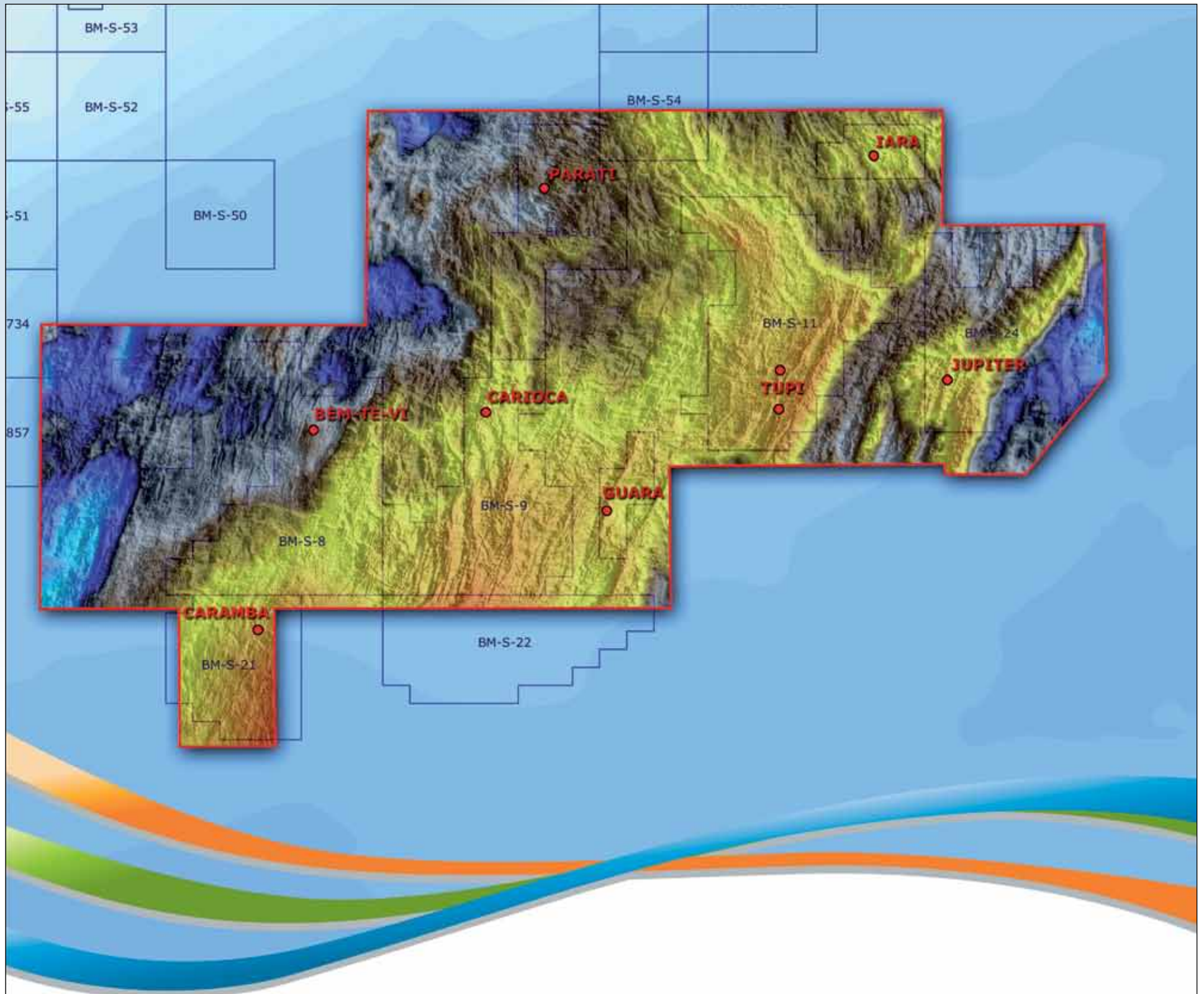




Canadian Mounties A spectacular setting for ICE

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PRESIDENT'S COLUMN

Responding in Critical Times

By DAVID G. RENSINK

This is a crucial month for the Gulf of Mexico in specific and the oil industry in general. This is the month BP expects to have a relief well in a position to stop the flow of oil from its deepwater well in Mississippi Canyon Block 252.

With luck, BP could already have stopped the flow by the time this issue of the EXPLORER reaches your desk, but the uncertainties of the weather and drilling operation could just as well push it beyond BP's target of an August completion. This catastrophe has significantly raised the public's awareness of offshore drilling operations, but certainly, not in the manner we would have preferred.

AAPG has provided background information to the media on offshore operations during this period. Talking to the media carries the risk of being misquoted, and some of my statements have been taken out of context and qualifiers have been deleted.

However, I believe remaining silent carries a greater risk. As petroleum geologists, we have a unique perspective on drilling operations. Many of us have spent a significant part of our careers on and around onshore and offshore drilling rigs.

We also have the ability to gather information from multiple sources, provide a coherent, objective interpretation and present it in a manner that can be understood by non-technical people. We have been selling geologic prospects to non-technical managers and executives for years.

The members of the media have received an education in science and engineering as a result of their coverage of the spill. That is evident in the questions



RENSINK

Members of the media have received an education in science and engineering as a result of their coverage of the spill.

they ask and their improved ability to comprehend the answers.

The knowledge we petroleum geologists have collected through education and experience, and which we largely take for granted, is foreign to many within our industry and to virtually all of those outside of it. We truly are a tribe, and the dialect we speak is not well understood beyond the tribe. We need to work on that.

* * *

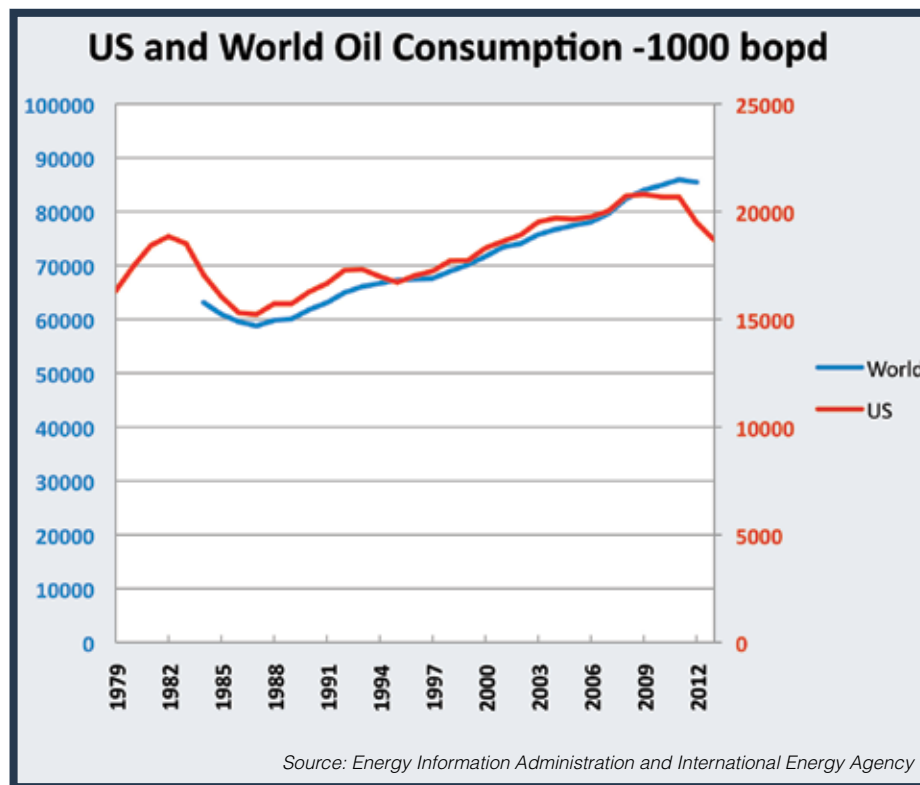
The oil spill has once again raised the call for the United States to wean itself from its oil addiction.

In as much as we use 18-20 million barrels of oil per day – and approximately 75 percent of that is used for transportation – it is unlikely that will occur in the near future.

However, it is worth reviewing the U.S. and world oil consumption trends for the last 30-35 years. The two consumption rates do have similar trends, as noted on the accompanying chart – but do not get caught up in the fact that the two curves seem to overlap. That is a scaling issue.

U.S. oil consumption flattened out after 2004 and declined from 2007 to 2009. The decline in 2008 and 2009 can be attributed to the decline in the U.S. economy. It will be interesting to see if the trend will reverse as the economy improves in 2010 and beyond. The flattening from 2004 to 2006 is similar to a stabilization of demand from 2000 to 2003.

It is tempting to speculate that the period from 2000 to 2006 represents the amount of



See President, next page

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ON THE COVER:

The beautiful and compelling Canadian Rockies will be close by for those attending the upcoming AAPG International Conference and Exhibition in Calgary – a perfect getaway for geologists and nature lovers of all levels. This view (and that to the immediate left) is looking northwest from above O'Hara Lake, showing the beauty of the Yoho-Banff national parks region. Photo courtesy of John Johnston.

Houston Abstracts Accepted Online; Deadline Sept. 23

Abstracts continue to be accepted for the 2011 AAPG Annual Convention and Exhibition, which will be held April 10-13 at the George R. Brown Convention Center in Houston.

The 2011 ACE general theme is "Making the Next Giant Leap in Geosciences," abstracts are being sought for 11 areas:

- ▶ **Molecules to Marketplace: The Business of Energy** – Business energy experts who can discuss active oil and gas trends, price, demand and advice on what might happen in the future.
- ▶ **Global Deepwater Reservoirs: Giant Leaps in E&P** – State-of-the-art geoscience deepwater reservoir studies and deepwater depositional environments in fields located in the Gulf of Mexico and offshore Africa.
- ▶ **Worldwide E&P: Opportunities in the**

New Decade – Exploration and production onshore or offshore, focused on significant new plays and studies of geological trends from around the world.

- ▶ **Challenged Resource Frontiers** – Multidisciplinary aspects related to the characterization, assessment and understanding of resources from less-than-conventional reservoir systems.
- ▶ **Mudstones and Shales: Unlocking the Promise** – A comprehensive look at U.S. and international gas- and oil-productive mudstone case studies, systems geology and geochemistry, exploration, assessment and ranking techniques, reservoir characterization and evaluation, and drilling and completion technologies.
- ▶ **Siliciclastics: Advancing Research to Resource** – All aspects of siliciclastic

research and reservoir characterization, including fluvial, shallow marine and deepwater settings, diagenesis and reservoir modeling.

- ▶ **Insight Into Carbonates and Evaporites** – A look at carbonate and evaporite research (ancient and modern), carbonate reservoirs, reservoir modeling, seismic interpretation and carbonate studies.
- ▶ **Breakthroughs: Tectonics, Salt and Basin Analysis** – Basin analysis, petroleum systems and studies of structure and tectonics worldwide, including faulting styles and salt tectonics.
- ▶ **Integrating New Technology, Geophysics and Subsurface Data** – Geology integrated with geophysics, applied to exploration and production – including surface and subsurface GIS

mapping technology.

▶ **Energy and Environmental Horizons** – Topics important to today's natural resource and environmental geologists. Alternative energy resource papers will be coordinated by the AAPG's Energy Minerals Division, and environmental geology papers by the Division of Environmental Geologists.

▶ **The Next Geo-Generation: Who, What and Where** – The trends and dynamics of young professionals in the energy industry, including career development, attracting and retaining geoscience staff and forecasting new career pathways.

Abstracts for all sessions should be submitted online at www.aapg.org/Houston2011.

The abstract submission deadline is Sept. 23.

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Dave Rensink in July on NBC Nightly News, one of multiple interviews he's provided for the national and international media regarding the Gulf of Mexico.

President from previous page

oil 300 million people require to maintain the current standard of living.

It also is tempting to say that M. King Hubbert may have been right.

Hubbert, in an article published in 1956, proposed that the depletion of a finite resource can be approximated by a normal distribution – a bell shaped curve. This led to the controversial concept of peak oil. His prediction that U.S. oil production would peak in the late 1960s was actually fairly close to reality; U.S. oil production peaked in the early 1970s.

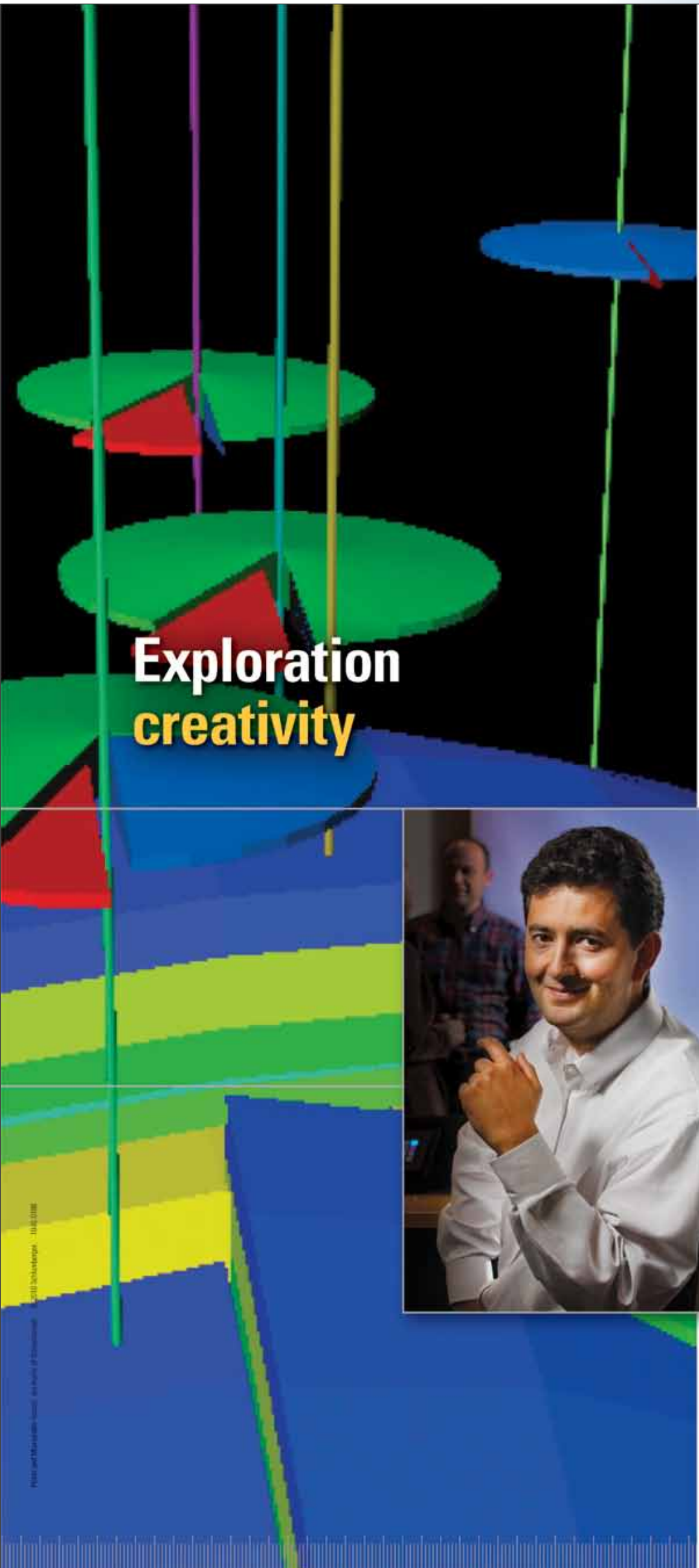
Inspection of the world consumption since 1981 could lead the bold to suggest the world is on the left arm of a broad, normal curve, and that the world consumption is flattening at approximately 85 million barrels of oil per day. Besides the fact that a few points do not necessarily constitute a trend, it would be hard to rationalize that interpretation with the increasing energy demands of China and India.

Therefore, I like an interpretation suggested by Matt Simmons in the February 2010 issue of *World Oil*. His position is that we may be seeing the effects of an aging infrastructure. We are not limited by the size of the resource. We have simply reached the capacity of the system.

That observation may apply to the United States as well as it does to the world.

* * *

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Another Shale Shows Promise

Frederick Brook Shale Spurs Canadian Exploration

By SUSAN R. EATON, EXPLORER Correspondent

When Apache Canada Ltd.'s Green Road B-41 horizontal well spudded on June 18, the event marked a technological step-change in the hunt for shale gas resources in New Brunswick, one of Canada's Maritime provinces that shares a border with Maine.

The commencement of horizontal drilling operations affirmed more than a decade of exploration and production efforts by Corridor Resources Inc. – a Canadian junior and Apache Canada's joint venture partner – to characterize the Lower Carboniferous Frederick Brook Shale as a potentially prolific resource play.

In stark contrast to its North American black marine shale counterparts, the Frederick Brook Shale is derived from a continental lacustrine source.

"Fundamentally, the Frederick Brook Shale stacks up very favorably – from a new ventures opportunity – to anything in Canada and the United States," explained Calgary-based geologist Robert Spitzer, Apache Canada's vice president of exploration.

"It doesn't suffer from being over-mature, nor from significant structure," he continued. "We know we've got a basin full of lacustrine shales that should be capable of production – it's rich, and it's thick."

Spitzer recently assumed the management of Apache Corporation's global unconventional exploration program.

"The Frederick Brook Shale has all the right ingredients for a world class shale: the vitrinite reflectance ranges from 0.6 to 2.4, taking you from the oil window to the dry gas window," Spitzer said. "The burial history is good, and it's deep enough. British Columbia's Horn River Basin is one of our analogs, and the Frederick Brook Shale is comparable or a little bit better than the Horn River Basin shales.

"However," he added pragmatically, "it's early days."

After five years of operation in the Horn River Basin, Apache Canada has jointly drilled 70 horizontal wells with trajectories now averaging 2,000 meters.

Describing Apache Canada's portion of the Horn River Basin as "in the development stage," Spitzer said his mandate is to identify and develop new gas shale resources in Canada, the United States and around the world.

Often new opportunities in the Lower 48 are largely unattractive, he said, due to fierce industry competition, high land bonuses and small land blocks. Apache Canada focused, instead, on the Maritimes Basin, which spans eastern Canada and comprises numerous, intercontinental strike-slip sub-basins.

In particular, Apache Canada homed in on the Frederick Brook Shale, an emerging resource play located in New Brunswick, a province with a competitive one-eighth royalty and a history of oil and gas production that dates back to the 1850s.

Leveraging its shale gas success in the Horn River Basin, Apache Canada is applying its E&P expertise to unlock the potential of the Frederick Brook Shale.

Location, Location, Location

Part of New Brunswick's attractiveness is the existence of the Maritimes & Northeast Pipeline, a 1,400-kilometer transmission system that crosses the province, transporting 400 to 450 mmcf per day of



Photo courtesy of New Brunswick Department of Natural Resources-Geological Surveys Branch

The Nabors Drilling Rig #58 drilling the Corridor/PCS McCully O-67-2425/N-66 well in the Sussex sub-basin.



Graphic courtesy of Maritimes & Northeast Pipeline

The Maritimes & Northeast pipeline links Canadian resources with northeastern U.S. markets – making the play even more important.

natural gas from offshore Nova Scotia to markets in Eastern Canada and Boston. In its current configuration, the pipeline's capacity is rated at 500 mmcf per day in Canada and 800 mmcf per day in the United States.

Halifax-based Corridor Resources was created in 1995 in direct response to the construction of the Maritimes & Northeast Pipeline – and true to its namesake, Corridor acquired lands along the pipeline route. Today the company holds 321,000 net acres in the Sussex sub-basin and the adjacent Elgin sub-basin.

Corridor's McCully Field, located in the Sussex sub-basin, contains 138 Bcf of proven plus probable reserves and currently produces 18 mmcf per day of natural gas from 30 wells tapping the Hiram Brook tight gas sand reservoir. Ten percent of the sales gas goes to the Potash Corporation of Saskatchewan's nearby industrial facility, and the remainder is transported to Boston

via the Maritimes & Northeast Pipeline system. The Frederick Brook Shale directly underlies the Hiram Brook tight gas sands in both the Sussex and Elgin sub-basins.

"It was important for us to get closer to market," Spitzer said, citing the 20-kilometer tie-in for the Green Road B-41 well to the McCully Field. "If gas prices stay low, it's good to be close to markets and infrastructure."

In addition to American markets, there is a small but growing domestic demand in eastern Canada. Natural gas produced in New Brunswick receives a small premium over NYMEX, and netbacks are higher than for other resource plays in western Canada.

"Being first-in to New Brunswick was great," Spitzer said. "Not only do you have to have the right shale, you have to pick the right deal."

The "right deal" was sealed in December 2009 when Apache Canada entered into a joint venture with Corridor – by June 2011,

Apache Canada will spend \$25 million CAD to drill, case, multi-stage complete and production test two 2,000-meter wells with 1,000-meter-long horizontal trajectories. The completion of this initial work phase gives Apache Canada an option to invest an additional \$100 million of capital expenditures over a two-year period, earning a 50 percent working interest in 116,000 gross acres in the Elgin sub-basin.

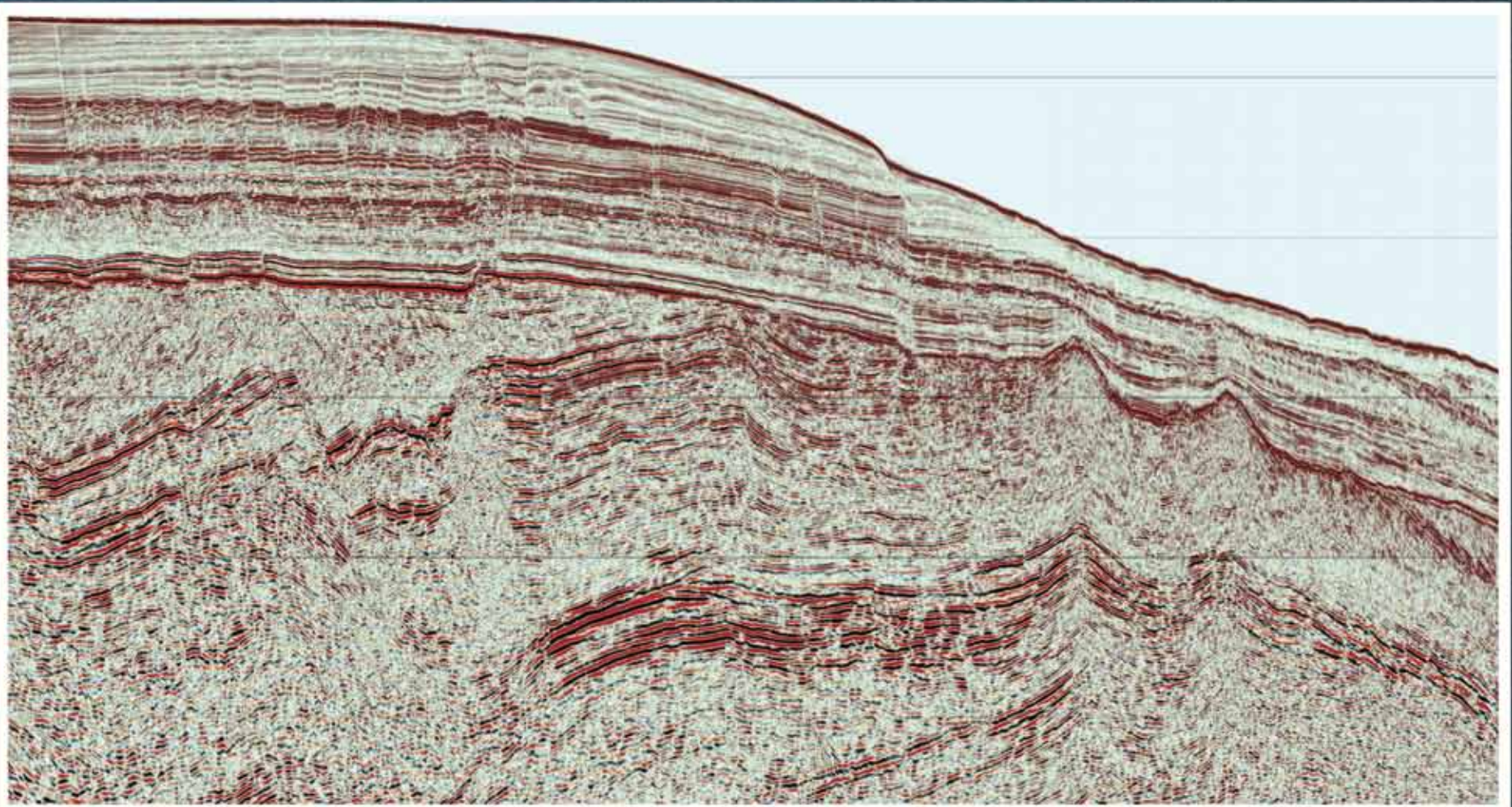
Apache's two horizontal wells in the Elgin Sub-basin will twin Corridor's vertical boreholes which encountered natural gas in the Frederick Brook Shale – the Will de Mille H-59 well drilled with air, and the Green Road G-41 well which successfully tested natural gas, in 2009, following propane fracs in two separate intervals.

In the Green Road G-41 well, the lower black shale zone (2,000-2,050 meters), flowed 430 mcf per day at a flowing

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Atlantic Margin Data

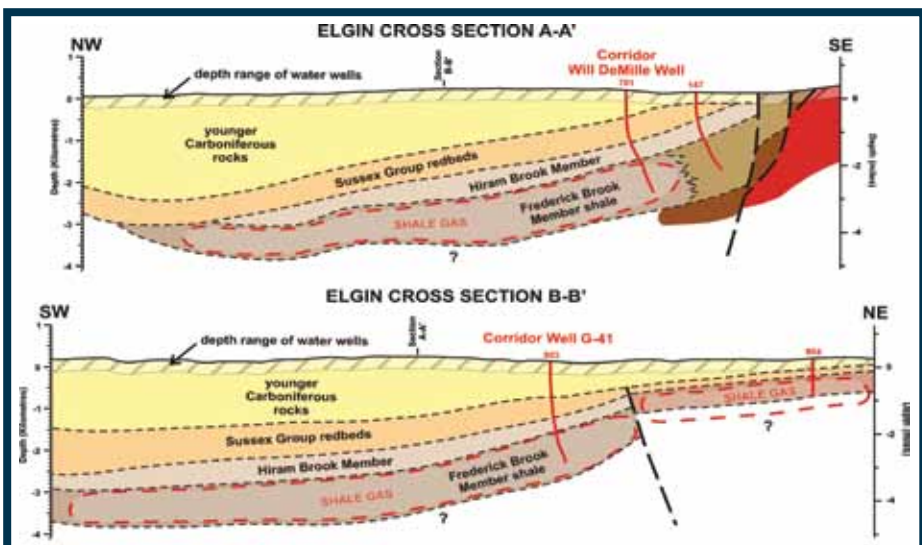
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Graphic courtesy of New Brunswick Department of Natural Resources-Geological Surveys Branch

Geological cross sections through the Elgin area.

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wellhead pressure of 150 psi over an 83-hour flow period. The upper silty/sandy shale zone (1,850-1,900 meters) produced 42.4 mmscf over 185 hours, peaking at 11.7 mmcf per day and stabilizing at 3 mmcf per day at a flowing wellhead pressure of 700 psi.

Get a Bigger Rig

Oil shales of the Albert Formation (which contains both the Hiram Brook and Frederick Brook members) outcrop in the nearby Moncton sub-basin, demonstrating the existence of an active petroleum system in southern New Brunswick. From the 1850s to 1870s, the shales were mined for bitumen, which was shipped to Boston and Philadelphia where it was

distilled to produce kerosene.

Despite Corridor's E&P focus on the Hiram Brook tight gas sands, the deeper Frederick Brook Shale has always been on the company's radar screen – that's according to AAPG member Tom Martel, Corridor's chief geologist. However, during the late 1990s, horizontal drilling and multi-stage fracturing technology didn't exist, Martel explained, nor did the industry believe that shales were capable of production.

Corridor, however, continued to evaluate the Frederick Brook Shale.

One commonly held geological belief – based on outcrop data – was that the Frederick Brook Shale was 200 meters thick. In 1998, however, Corridor rewrote the geological atlas for New Brunswick, when it drilled the Will de Mille H-59 well and penetrated 500 meters of the Frederick Brook Member, an inter-bedded package of kerogenous shale, silty shale and tight gas sands. Martel knew they had a "lively shale" when the Frederick Brook section generated gas shows and strong flares while drilling with air.

Determined to drill and evaluate the entire Frederick Brook Shale section, Corridor's next attempt, the McCully F-58 well, penetrated more than 900 meters of the Frederick Brook Shale – but the well didn't penetrate the entire section, and at 3,700 meters drilling depth, the well was suspended because the double drilling rig was constrained by horsepower.

"We were fighting gas all the way ... with 1,120 weight mud, and there was gas in the shale and a significant flare," Martel said. "Now that was exciting!"

Upgrading to a triple rig, Corridor drilled the McCully E-67 well, finally penetrating the entire Frederick Brook Shale – all 1,164 meters of it – and reaching total depth in the Horton red beds below.

In 2008, Corridor tested the lower zone in the Frederick Brook Shale in the McCully F-58 well, using a nine ton frac, which is small by today's standards for shale gas completions. The zone came on production at 500 mcf per day, and today it produces 175 mcf per day.

The Size of the Prize

Measuring just 15 kilometers across and 40 kilometers long, Martel compares the combined Sussex and Elgin strike-slip sub-basins to California's Ventura Basin.

"When strike-slip basins open, they create very large holes that are deep but not very wide," he said. "You have a highly concentrated packing of gas in a small geographical area."

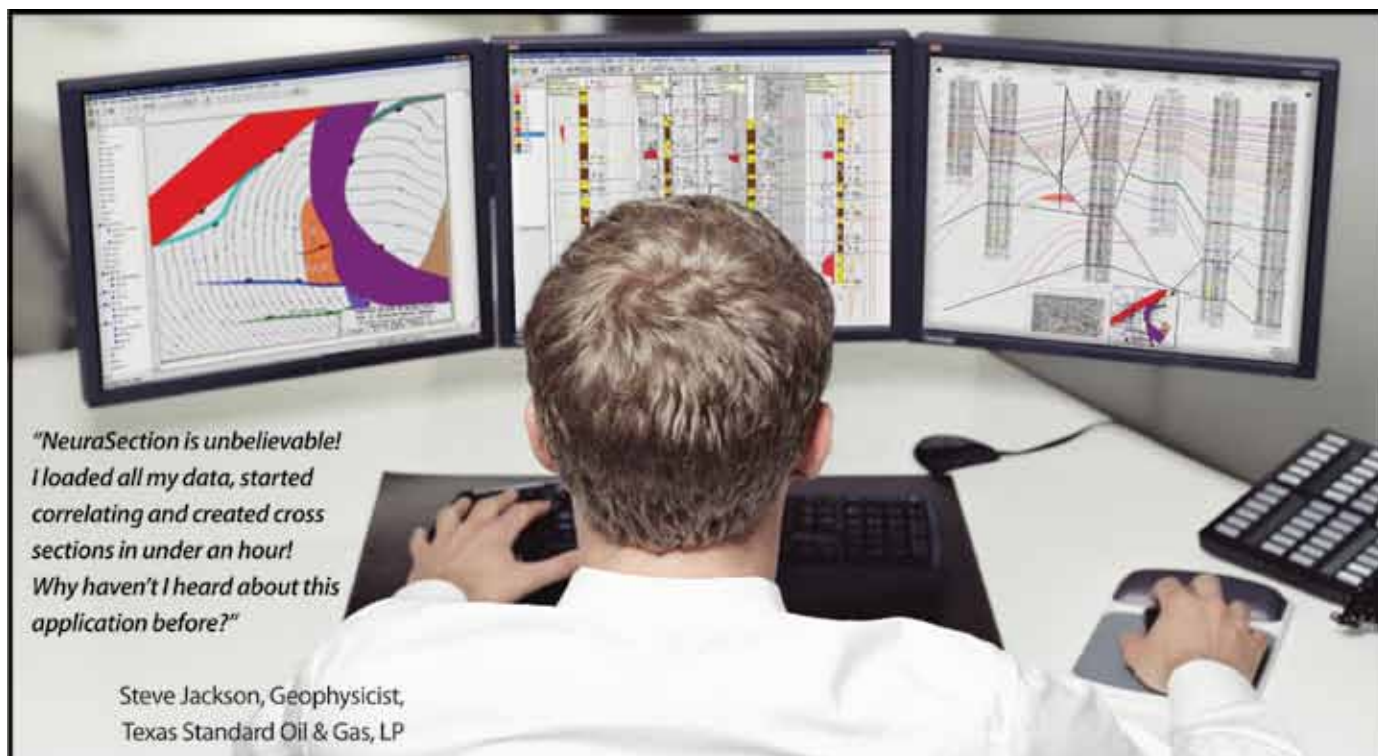
Yet despite the modest size, there's a lot of gas in the Sussex and Elgin sub-basins.

Based upon a 2009 assessment of Corridor's 10 vertical wells that have penetrated part or all of the Frederick Brook Shale, mapping from 2-D and 3-D seismic surveys, production tests and GLJ Petroleum Consultants, a Calgary-based independent reserve evaluator, assigned 67.3 Tcf of discovered resources to the Frederick Brook Shale. The GLJ report also assigned contingent resources to the Green Road G-41 area of the Elgin, ranging from 395 to 708 Bcf.

The GLJ report quotes a resource of 370 to 625 Bcf per square mile (upper and lower zones combined), which is based upon free gas-in-place, with no contribution from adsorbed gas within existing kerogen.

"In the shale gas world, I'm not aware of anything that comes remotely close to the Frederick Brook Shale, and that's because of its thickness," Martel said.

See **New Brunswick**, page 10



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Steve Jackson, Geophysicist, Texas Standard Oil & Gas, LP

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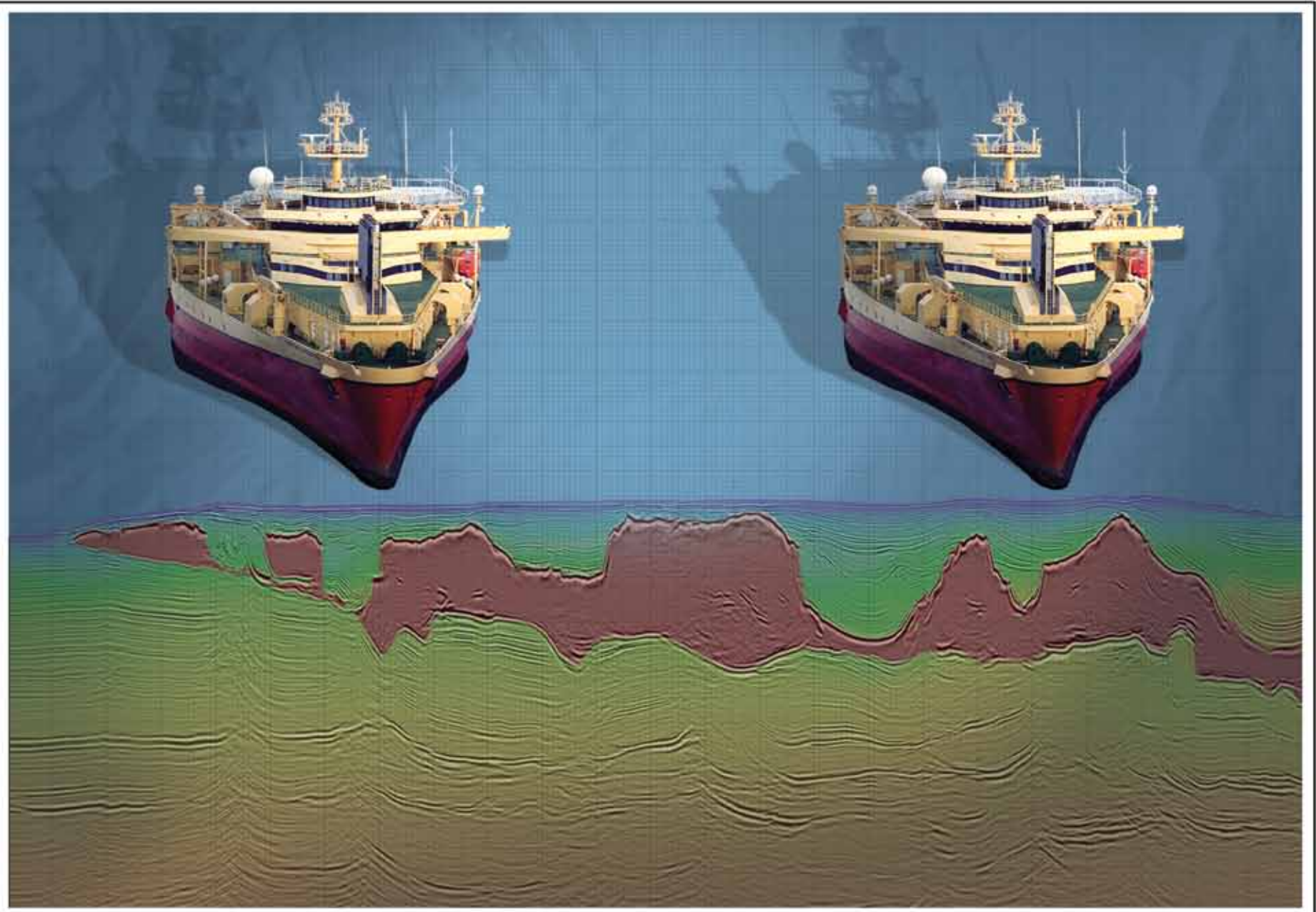
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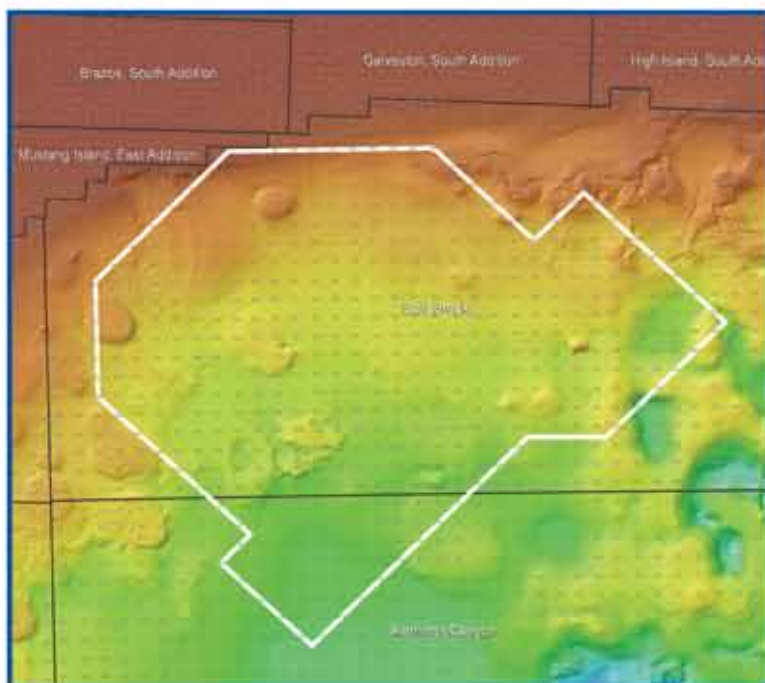
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New Brunswick
from page 8

Southwestern Looks Northeast

Less than four months after Apache Canada announced its entry into the Frederick Brook Shale play, Houston-based Southwestern Energy announced it was the successful bidder on exclusive licenses totaling 2.52 million acres in New Brunswick. The architect of the Fayetteville Shale play, Southwestern Energy will invest \$49 million CAD of capital expenditures during the next three years, culminating with the drilling one well by 2012.

"We (Apache and Southwestern) were both surprised, I think, with each other's appearance in New Brunswick," said AAPG member Randy Ponder, vice president of Southwestern Energy's new venture group. "Our challenge is to be a first mover in an area, and to find large, contiguous blocks with opportunity."

"It's a natural extension to the expertise that we've gained in the Fayetteville and the Marcellus," explained Ponder, a geologist. "The Frederick Brook Shale compares quite favorably to some of the shales that we've worked, including the Fayetteville, the Marcellus, and the Haynesville."

"In fact," he added, "the Frederick Brook Shale's TOCs are richer in places than any of those shales."

Southwestern Energy's acreage is situated north of the Corridor acreage, in an area that's essentially unexplored. Before bidding, the company reviewed analogous sub-basins to the south and assembled all publicly available aeromagnetic data. It reprocessed these data, creating a depth-to-basement map



Photo courtesy of New Brunswick Department of Natural Resources-Geological Surveys Branch

Steven Hinds (left) and Craig Parks (right) along Highway #1, approximately five kilometers west of Sussex, New Brunswick. The road cuts are interpreted to represent the lower shales of the Hiram Brook member with interbedded minor sandstones.

that revealed the existence of several sub-basins beneath the Carboniferous cover at surface.

"We were rather surprised," Ponder said of the discovery of these narrow, strike-slip sub-basins. "The more we tried to determine what else they could be, the more they looked legitimate."

Southwestern Energy also compared the onshore interpretation to the offshore seismic data – the shales also exist in the offshore – obtaining a stronger regional structural interpretation.

Within four short months of obtaining the licenses, Southwestern Energy has flown an airborne magnetic and gradiometer survey, and is currently permitting a surface geochemistry sampling program to be conducted later this summer. All of these back-to-the-basics exploration tools

will be integrated to further evaluate the new sub-basins, optimizing the positioning of a 1,000- to 1,300-kilometer 2-D seismic survey to be acquired next summer.

"Although we've just started the exploration phase, if successful, New Brunswick is going to be a significant part of Southwestern Energy's business," Ponder said.

"We're hopeful," he added. "Like the shale gas, there should be more McCully fields (tight gas sands) if the petroleum system is working."

By the Sea

During the next few years, the future of the Frederick Brook Shale as a world class resource play could be determined as these two industry leaders – and by a Canadian

junior quickly moving up the shale gas learning curve – apply their expertise in the development of North American shale gas plays.

"These two horizontal wells will go a long way to answering our questions about the Frederick Brook Shale (and silt)," Spitzer said. "At the end of the day, it all comes down to producibility."

Given commercial success, Apache Canada's full-scale development phase contemplates the annual drilling of one to two pads over a 10- to 30-year time frame. Each well pad would have eight to 16 horizontals with trajectories on the order of 2,000 meters.

"We're cutting to the chase here, faster than we did in the Horn River Basin, and we've made use of the learning curve in the Horn River Basin," Spitzer added. "You need scale to make this work. And, if it works, we've got a lot to do."

Apache Canada conducted stakeholder consultations and open house meetings before commencing drilling operations.

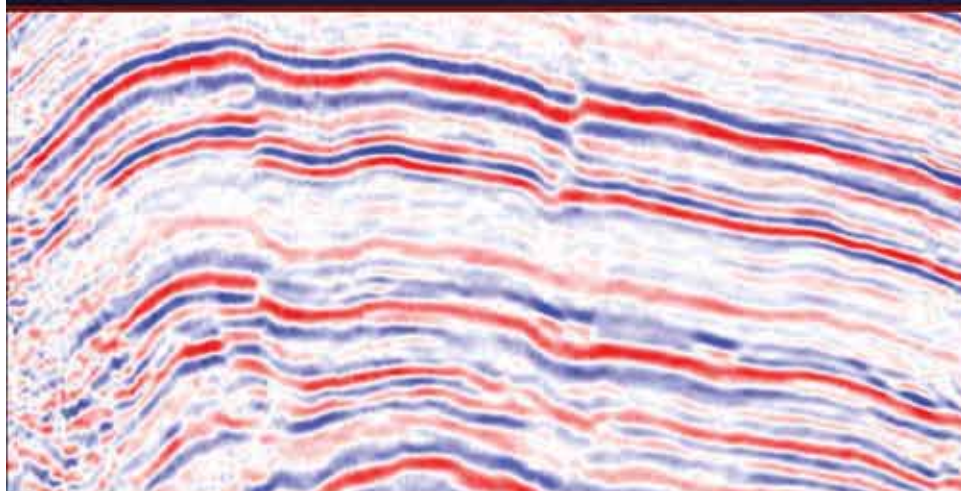
"People have concerns, whether in the Horn River or New Brunswick," Spitzer said with respect to water usage in multi-stage slick water fracs.

Apache Canada is investigating tapping the largest source of nearby water, the ocean.

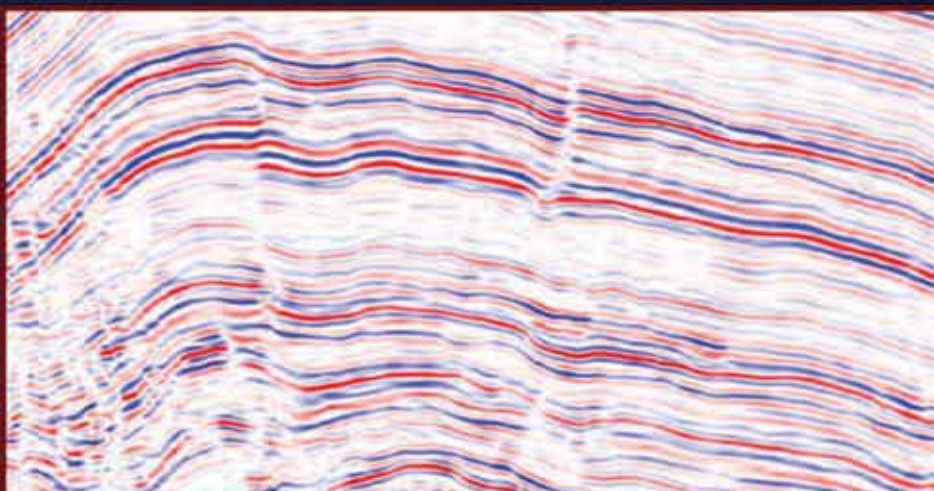
"Why wouldn't we look at the potential of using sea water, and reducing the amount of fresh water?" he said, adding that the salinity of sea water is similar to that of Devonian carbonate formation water that will be used by Apache Canada and its partner EnCana in multi-stage fracs in the Horn River.

"Using sea water is an elegant solution – if it can be done," he said, "and we've been innovative in mitigating impacts, whether in British Columbia or New Brunswick."

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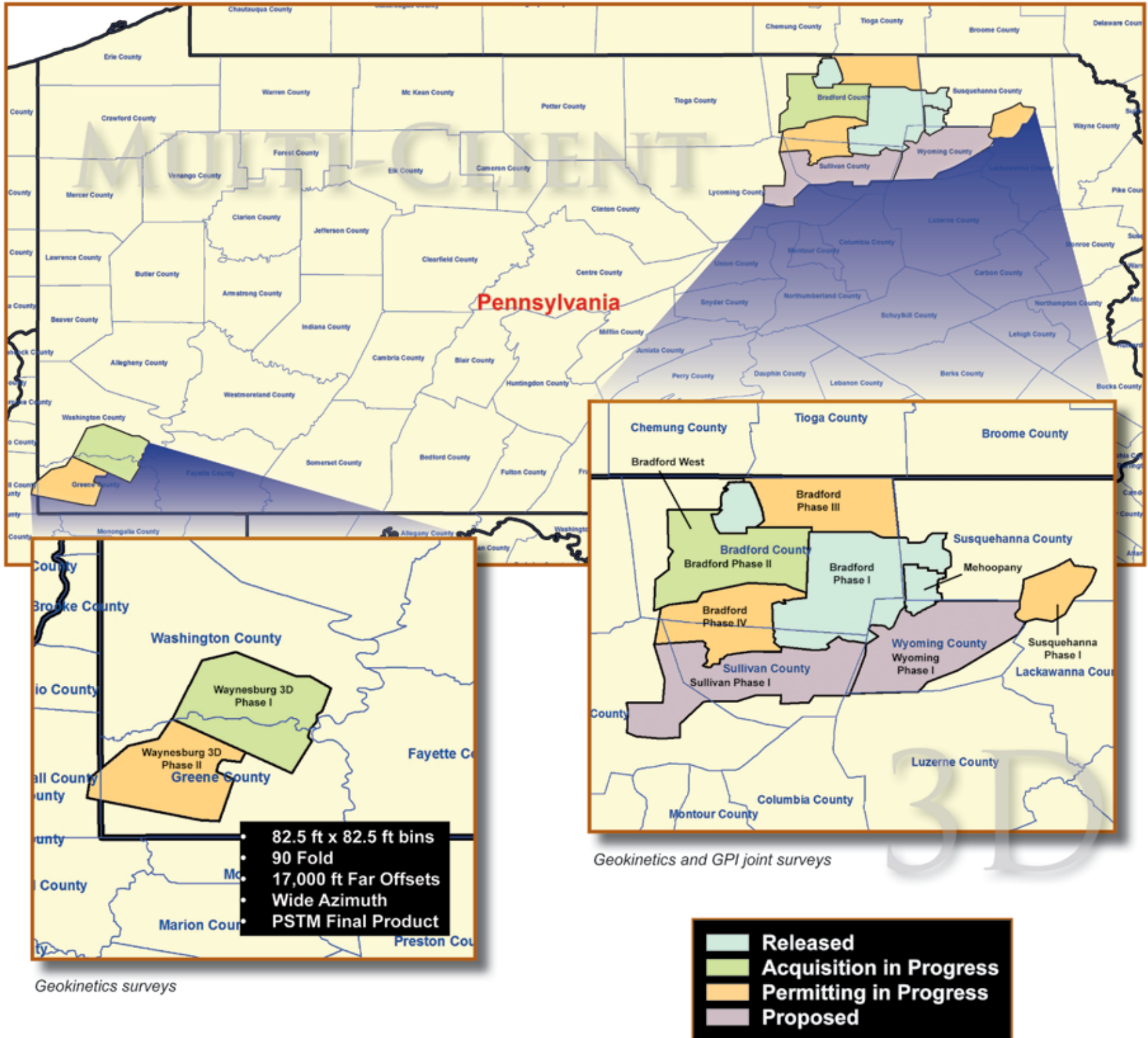
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Calgary is the site of this year's AAPG International Conference and Exhibition, set Sept. 12-15 – the first time an ICE will be in North America since 2004.

Saddle up for Calgary Spotlight Shines on ICE

The planning is finished, the preparations are nearly complete, the science is ready to be shared – and AAPG's spotlight on international plays, global geoscience and industry trends is about to shine bright.

It's nearly time for the AAPG International Conference and Exhibition, set Sept. 12-15 in Calgary, Canada – the first time an ICE has been held in North America since 2004 (Cancun).

With a theme of "Frontiers of Unconventional Thinking: Saddle Up for the Ride," this ICE figures to be a truly international affair.

Registration figures to date show attendees will be coming from 42 countries – and that number is expected to grow as the event approaches.

"The focus for many geoscientists is our passion and love for the science of petroleum geology," said ICE general chair John Hogg, "and we hope to capture that in Calgary."

"Calgary has never hosted the AAPG international conference before," he added, "and we're excited to share with attendees the favorable late-summer climate and dynamic E&P community this leading energy city has to offer."

In addition to a technical program consisting of nearly 400 oral and poster sessions, there will be a special one-day program on Tuesday, Sept. 14, highlighting unconventionals. That day's lineup will include:

- ▶ A special "Unconventionals Day" luncheon on "Global Challenges in Shale Reservoir Development: Why a Statistical Approach Won't Work."

- ▶ A business forum titled "Unconventional Exploration and Development Geoscientists Toolbox: What New Tools Do Geoscientists Need in the Next Decade?" chaired by Richard Herbert, executive vice president of Talisman.

- ▶ A management forum on "E&P Challenges in Complex Environments: From the Arctic to Deep Water."

- ▶ A special lecture titled "Geology of a Major SAGD Bitumen Development – A Case Study from Long Lake, Northeastern Alberta," by AAPG member Dale A. Leckie of Nexen Inc.

Other meeting highlights include:

- ▶ A plenary session titled "Canada: Our Resources to International Exploration."

- ▶ A special lecture titled "Burgess Shale Tales – Mud Volcanism and Chemosynthetic Communities on the Middle Cambrian Seafloor of Southeastern British Columbia."

- ▶ A PROWESS-sponsored forum on "The Value of Diversity in Leadership: Global Perspectives."

- ▶ Special luncheon speakers covering all three days of presentations.

But the entire technical program centers around awareness of – and responding to – current international trends.

"On the international side, events continue to change our industry, and the resource plays that started in North America are now being explored for around the world," Hogg said.

"Our science and profession continues to change, and many factors impacting the geosciences profession in the last three years – related to resource plays, tight sands, coal, oil sands and shales – are developing new technologies," Hogg said, adding that those factors will be on display in Calgary in both the technical program and the exhibition hall.

Bottom line: Whether you're making plans for Tuesday's Unconventional Day session or for the entire conference, you're sure to learn something new.

And there's still time to save on early registration: Members who register by Aug. 10 can save US \$175.

To register, or for more information, go online to www.aapg.org/calgary.

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1 Indicates number of wells in basin
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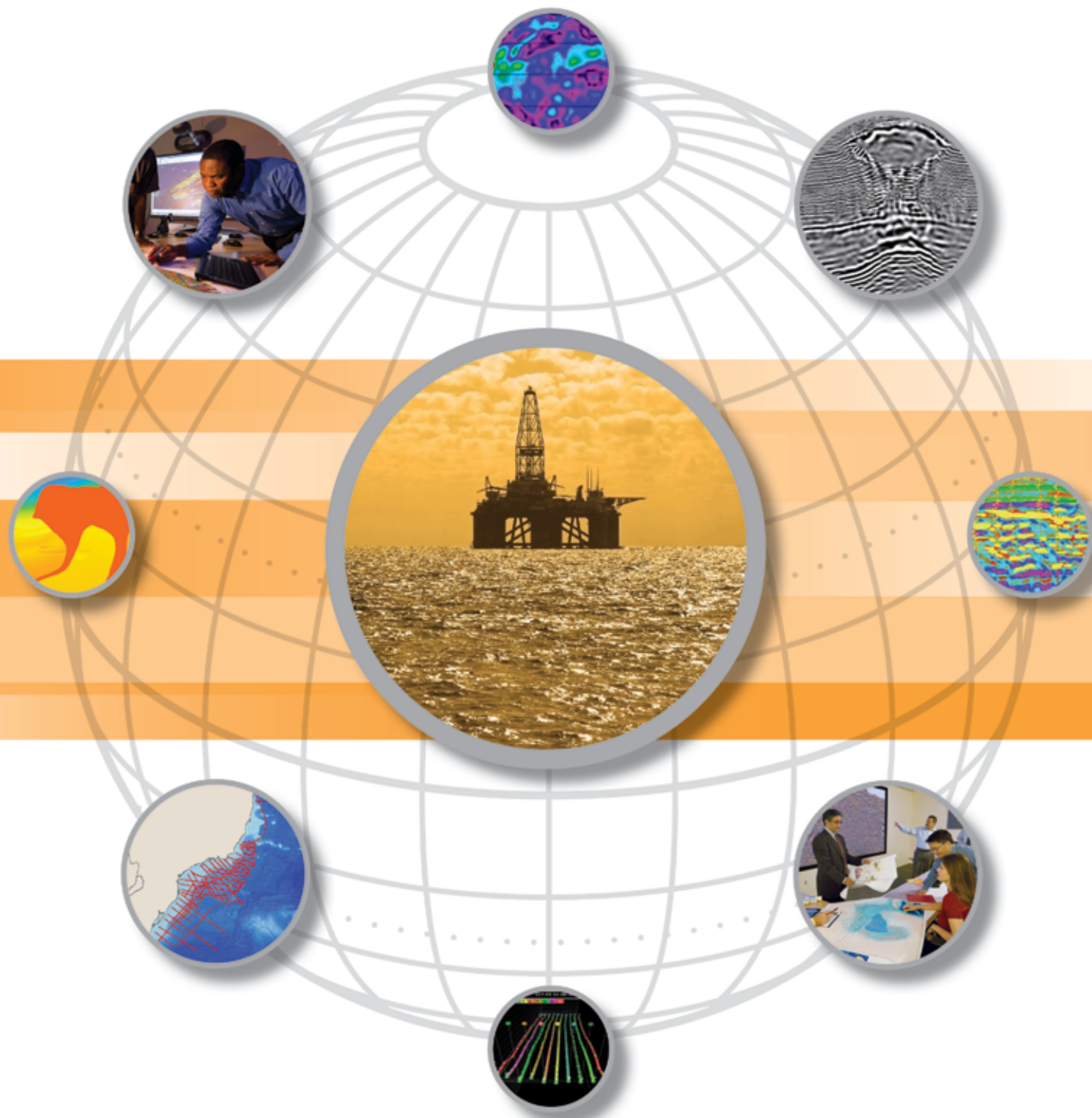


Partial Map Detail

API	Operator	Lease	Wells	County	Top Depth (ft)	Bottom Depth (ft)
420100000000	HUMBLE OIL & REFINING	DUNSMIRE, KILLIP B	1-6	ATASCOSA	8400	7916
420100000000	HAZEL, C & SONS	MARIE COOPER HALEY	1	ATASCOSA	8420	7991
420100000000	SOUSHORFF, EUGENET	HENRY, S W	1	ATASCOSA	7974	8024
420100000000	PAN AM PETRO CORP	R R BIRNELL	4	ATASCOSA	4322	7022
420100000000	SHELL OIL CO	WINKLER, BERTHAM	1	ATASCOSA	7470	8190
420100000000	SHELL OIL CO	RODMAN, J M	1	SEE	10070	12240
420100000000	SHELL OIL	RODMAN, A E	1	SEE	10060	10060
420100000000	TEXAS EASTERN TRANS CORP	BARRO GAS UNIT	1	DE WITT	10087	13410
420100000000	SHELL OIL	BROWN, CORA S	1	DE WITT	13700	15800
420100000000	ARCO OIL & GAS	ARCO HORROW	1	DE WITT	10000	1470
420100000000	MOF OIL Corp	BEEVER	1	FRIO	8540	4080
420100000000	ETA OIL PRODUCERS	75th AN-F HADP	1	FRIO	8500	5310
420100000000	FLAC-HESTER OIL Co	MAD01	1	FRIO	8240	1500

Partial Well Data

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Unconventionals give boost

Canada a Showcase of 'Resourcefulness'

By DAVID BROWN, EXPLORER Correspondent

If you had only one word to describe Canadians, you probably would choose this one:

Resourceful.

A close look at Canada's resources – and Canadian resourcefulness – will be provided during the plenary session of AAPG's International Conference and Exhibition in Calgary in September.

Titled "Canada: Our Resources to International Exploration," the session will present speakers from government, institutions and industry in an overview of the country's undeveloped resources and its companies exploring around the world.

Attendees will hear a variety of viewpoints in a comprehensive picture of current and future resources and activities, according to John Hogg, vice president of MGM Energy Corp. in Calgary and the conference general chair.

"What they'll get is an appreciation for the vast energy resources of Canada and a view of the companies that have decided to do their core business here," Hogg said.

Industry expert and analyst Pete Stark, a vice president of IHS in Denver and an AAPG member, is scheduled to begin the session's speaker presentations with "Riding Canada's Unconventional Wave: More Resources-New Opportunities."

He will be followed by John Harper, director of the Geological Survey of



DOLPH

"A lot of the technology and the skills that we have here in Canada can be transferred quite easily to the international projects we look at"

Canada, discussing "Canada's Energy Portfolio: The Reawakening of an Energy Giant."

Speakers from the Alberta Energy Resources Conservation Board and other government agencies will describe the potential for development of provincial energy resources.

After a break, speakers from some of Canada's leading and largest oil and gas companies will give an overview of their perspectives, plans and activities.

An International Flavor

Calgary is home to a number of large players in international exploration and production. That's not surprising, because Canadians have had to develop the skills and resourcefulness to carry out challenging energy-development programs, Hogg noted.

"The Canadian expertise we have in exploration and production can be transferred to many parts of the industry

around the world, things that are unique to the way we have to develop our resources," he said.

Co-chairs for the plenary session are AAPG members Bob Dick, former president of RPS Canada, and Dave Dolph, senior staff geologist for Nexen Inc. in Calgary, and the president of AAPG's Canadian Region.

"Sometimes there's a perception that being in Canada is not really where an international company should be. That does come up," Dolph acknowledged.

But with today's information and travel networks, and the spread of energy exploration everywhere around the globe, a company's headquarters can be almost anywhere.

"The way things are today, it doesn't really seem to matter," Dolph said.

Companies in Calgary have access to skills important to today's industry challenges, like operating in harsh environments or producing heavy crude, he observed.

"A lot of the technology and the skills that we have here in Canada can be transferred quite easily to the international projects we look at," Dolph explained.

It's not unusual to find that a smaller operator in some remote foreign setting has established a home base in Calgary.

"We have a lot of those companies in town, some of them public, some of them private," Hogg said. "They choose to do that because the expertise is here."

Canadian Challenges

In recent years, the boom in shale gas plays reached Alberta and British Columbia, adding names like Horn River and Montney to the list of unconventional targets.

Shale development in Canada has been both later and slower than in the United States, however.

"In Canada, the unconventional side is probably two to three years behind the United States," Hogg said. "And we're just scratching the surface of the best of the shale plays."

One obstacle is the shortened drilling season in Canada, with equipment able to move only when the ground is frozen, he noted.

Another problem comes from a lack of existing infrastructure and support

See **Canada**, page 16

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Candidate Bios Available Online

Biographies and individual information for AAPG officer candidates for the 2011-12 term will be available online in mid-August at www.aapg.org.

For the first time, video comments by the candidates also will be available online.

The president-elect will serve in that capacity for one year and will be AAPG president in 2012-13. The vice president-Regions and secretary serve two-year terms.

Ballots will be mailed in spring 2011.

The slate is:

President-Elect

- Edward A. "Ted" Beaumont, independent consultant, Tulsa.
- John C. Dolson, DSP Geosciences and Associates, Coconut Grove, Fla.

Vice President-Regions

- David C. Blanchard, El Paso Egypt Production, Lasilky, Maadi, Egypt,
- Stuart D. Harker, Circle Oil Plc, Finchampstead, U.K.

Secretary

- Charles A. "Chuck" Caughey, ConocoPhillips, Houston.
- Denise M. Cox, Storm Energy, Panama City, Fla.

Canada from page 14

resources in Canada's shale play areas – right down to acquiring gravel for drilling pads "when there's no gravel to be found," Hogg said.

"The infrastructure has been the challenge," he said, "and that has actually forced these big companies to work together."

Tar sands – also called oil sands – are the other big story in Canadian unconventional resources.

That resource is bound to be a huge part of the world's oil-supply future, even though the industry is still testing and experimenting with ways to produce the heavy oil.

"No one approach has clearly come

out as the winner yet," Hogg said. "And we know that the second largest oil resource in the world is the Alberta tar sands."

Not only is development of the tar sands resource important to Canada, it also will increasingly be vital for the United States, he noted.

"It is the only place the U.S. is going to be able to turn without sending its money to countries that may not have the best interests of the U.S. at heart," Hogg said.

"You just have to look three, five, seven years down the line," he added. "Where else are you going to go?"

Another real challenge to development of the tar sands' heavy crudes is environmental opposition to their production, treatment and transportation.

"Environmentalists make out oil sands to be the biggest environmental disaster on the planet," Hogg said. "What they do is ignore the technology that's being used, and ignore the fact that all of these sites will eventually go back to being pristine forests."



HOGG

Unique National Structure

Canada's oil and gas industry has a unique national structure.

Part of the world's energy-company landscape is divided into majors, large companies and independents, some publicly traded and some privately held. The rest of the world tends to have government-controlled energy programs with national oil companies and few if any publicly traded companies.

That's often called the contrast between IOCs (international oil companies) and NOCs (national oil companies).

Canada has developed a structure of large oil and gas companies, energy trusts and junior oils. The U.S. concept of "independent operator" isn't as common.

"We would call them 'juniors' instead of 'independents,'" Hogg commented.

He said a large part of the reason for that is the limited amount of subsurface mineral rights in private hands in Canada. Most of the royalty rights are government-held or "Crown" rights, meaning they are held for the benefit of all citizens together.

That adds to Canada's place as a unique country in regard to energy resources and industry operations – and its status as one of the most resourceful countries anywhere.

Growing interest in unconvensionals, coupled with a period of relatively high oil prices, has brought a new spurt of activity to Canada's energy industry.

"What it's done over the past two years is really brought back a resurgence in the industry about, 'How do we develop the resource?'" Dolph said.

The largest energy companies in Calgary still maintain an international outlook, and Dolph said his own company is looking beyond the local unconventional plays.

"Nexen sees its future internationally, and not to end up just in resource plays," he said. "Resource plays are the big focus, but Nexen is looking at conventional international oil development – the big push here is on conventional exploration." ■

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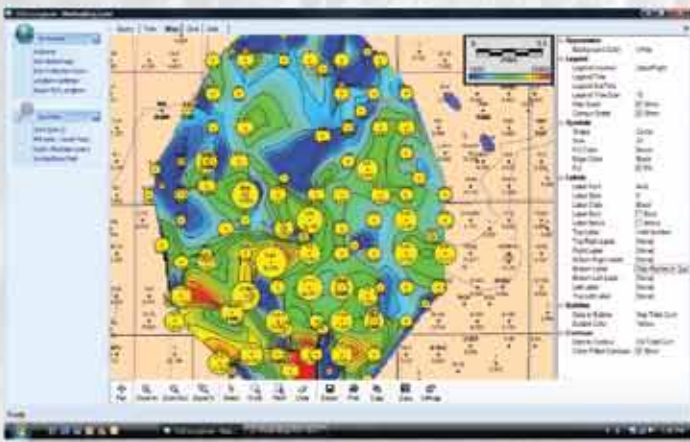
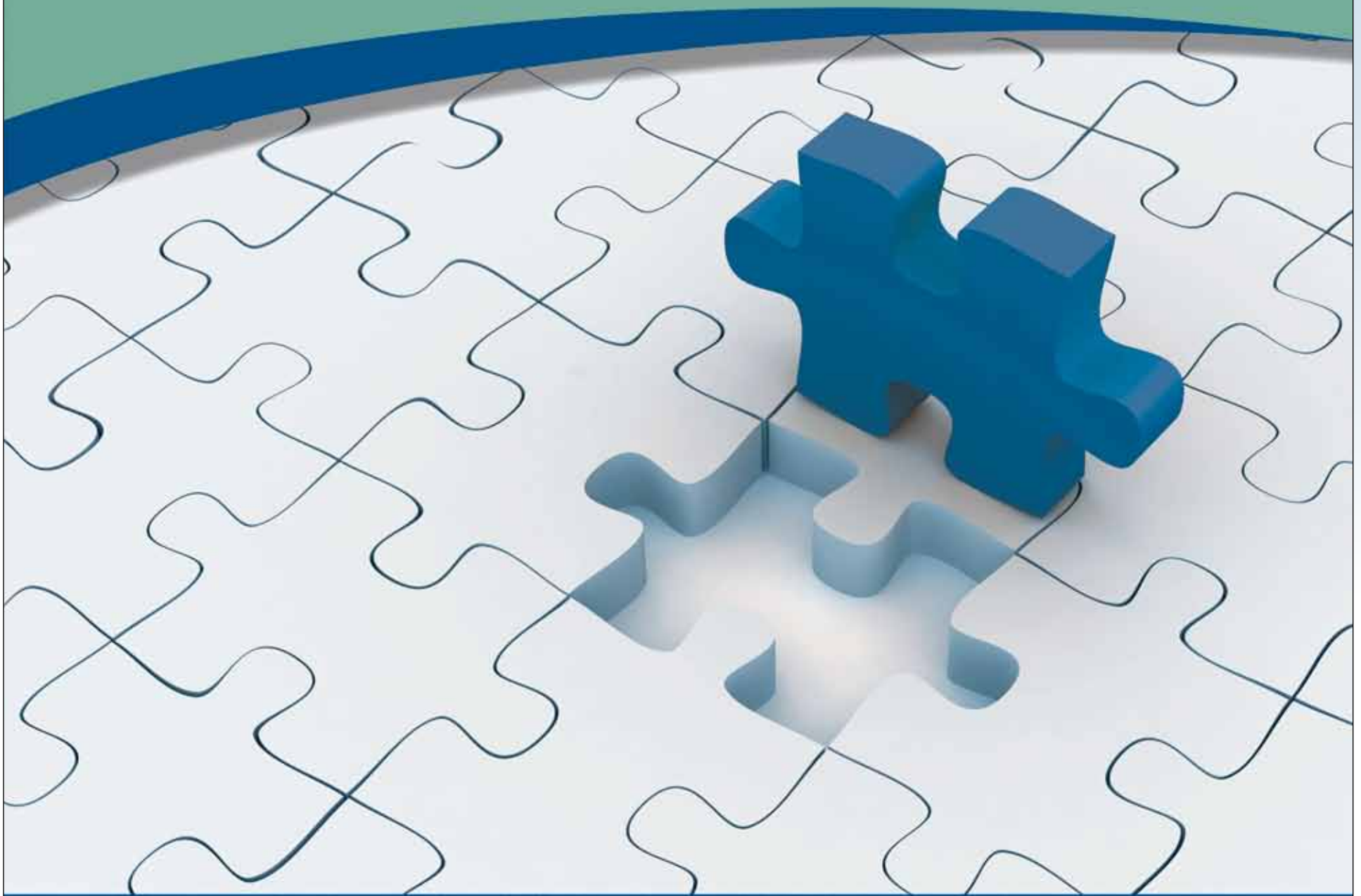
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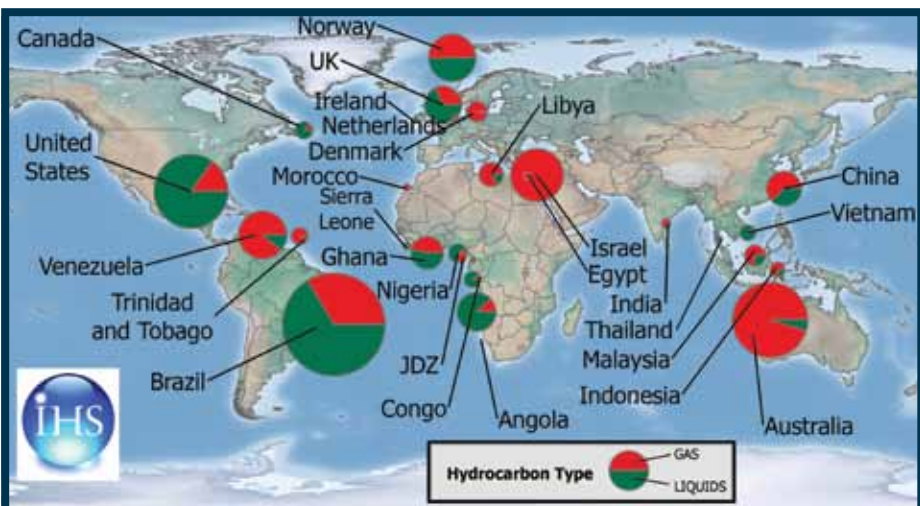


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Alex Chakhmakhchev will present the paper "Global Overview of Recent Exploration Investment in Deepwater – New Discoveries, Plays and Exploration Potential," at 8:25 a.m. Tuesday, Sept. 14, at the AAPG International Conference and Exhibition in Calgary.



Experts believe offshore exploration will continue to be important: A look at recent discoveries.



A display of global offshore fields shows the wide-ranging locations of the important plays.

It's where the elephants are

Deepwater Exploration Still Beckons

By LOUISE S. DURHAM, EXPLORER Correspondent

Onshore hydrocarbon production appears destined to be around well into the future – especially considering the success and increasing popularity of the ubiquitous shale gas plays, which originated in the United States.

In fact, today's search for shale plays is heating up on the international scene as well, including various European locales, China other regions.

But as global hydrocarbon demand increases, the industry's principle focus will be on the offshore deepwater and ultra-deepwater environments as the operators home in on the major

hydrocarbon supplies that will be needed in the future, according to Alex Chakhmakhchev, senior manager at IHS customer care.

"My thinking is that demand is still high and will push oil and gas exploration far away from shore," Chakhmakhchev said. "In the U.S., when the dust settles, there will be new regulations, but we'll still explore in the deepwater (DW) and ultra-deepwater (UDW) environment."



CHAKHMAKHCHEV

"I believe operations can be safe, and we can avoid disasters like this," he said, referring to the recent leak in the Gulf of Mexico "and drilling will resume in the near future."

"Our message is that the deepwater environment is becoming a key source of new reserves," he added, "and onshore is running out of steam globally."

Trending

Chakhmakhchev noted that when oil prices were spiraling upward a few years ago, companies were drilling at a near-frenzied pace and had every

opportunity to find hydrocarbons. Yet they achieved moderate success onshore where many giant producing fields are reaching maturity.

Oil-rich, under-explored/produced Iraq is perhaps the only place remaining for significant discoveries onshore. Still, the war-torn country must achieve some level of political stability before this can even begin to happen.

IHS data indicate that in the last 10 years, more than half of new global

[See Deepwater, page 20](#)

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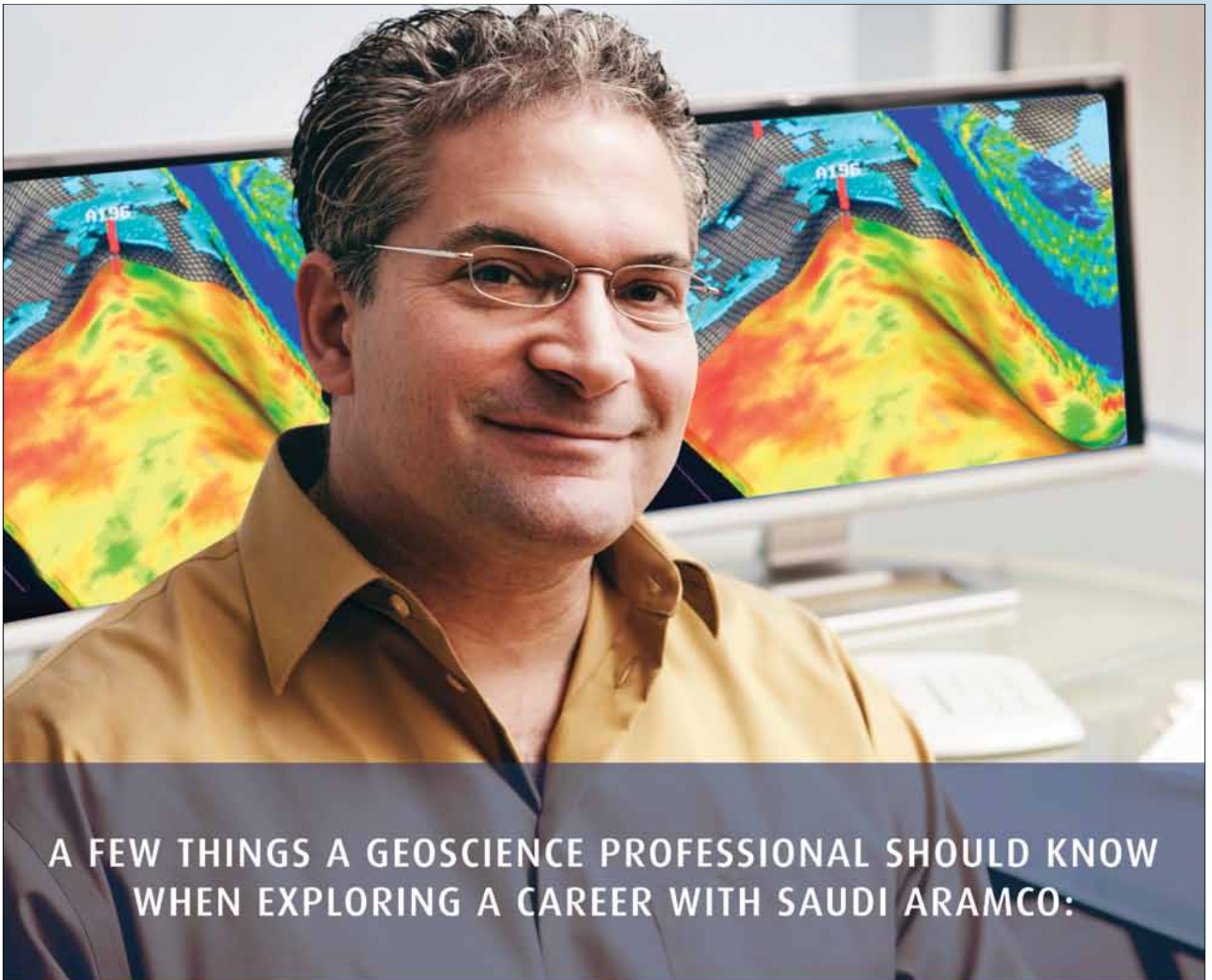
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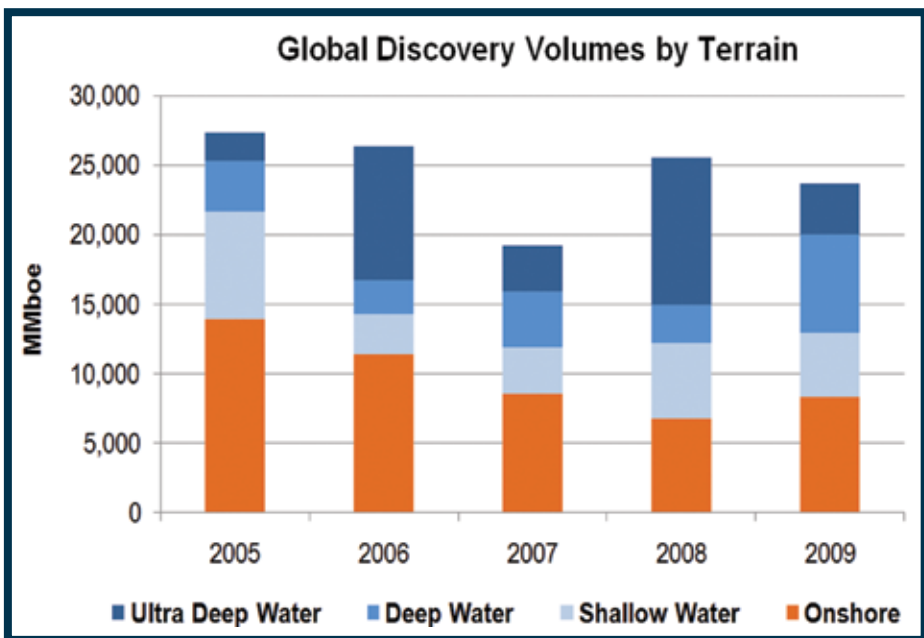
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Deepwater from page 18

oil and gas reserves were discovered offshore. The DW and UDW are becoming the dominant source of new reserve additions, accounting for 41 percent of total new reserves based on a statistical evaluation of discoveries between 2005 and 2009.

Chakhmakhchev noted this trend is expected to continue, making offshore and the deepwater in particular the key contributor to new reserve and supply growth.

The DW and UDW are defined as greater than 1,312 feet and greater than 4,921 feet, respectively, in IHS's global overview of offshore oil and gas operations for 2005-09.

"We found in our study, which was aimed at identifying new plays in deepwater settings worldwide, that companies are drilling fewer wells in shallow water, but the deepwater rate is still strong and growing despite the economy," Chakhmakhchev said.

Deepwater Discoveries

The 2005-09 study revealed that over the last five years, major deepwater discoveries of oil and gas (41 BBOE, proven and probable) occurred in:

- ▶ Brazil.
- ▶ United States.
- ▶ Angola.
- ▶ Australia.
- ▶ India.
- ▶ Nigeria.
- ▶ Ghana.
- ▶ Malaysia.

Countries where deepwater discoveries were made for the first time are:

- ▶ Ghana.
- ▶ China.
- ▶ Russia.
- ▶ Mexico.
- ▶ Trinidad & Tobago.
- ▶ Mozambique.
- ▶ Cameroon.
- ▶ Libya.
- ▶ Cuba.

New plays have been discovered in deepwater in:

- ▶ Brazil.
- ▶ Ghana.
- ▶ Israel.
- ▶ Malaysia.
- ▶ India.
- ▶ Norway.
- ▶ Mexico.

"These new plays were not known either on- or offshore prior to 2005," Chakhmakhchev said, "and represent new concepts of hydrocarbon accumulation in deepwater."

"Almost 20 BBOE were reported discovered since 2005 in sub-salt Cretaceous deposits in Brazil," he said. "Although the Brazilian discoveries represent a new play type in the Santos Basin, this geologic setting is not unique. In fact, about 30 BBOE were discovered globally in sub-salt Cretaceous reservoirs."

A headline-making natural gas find occurred offshore Israel when Noble Energy discovered the world class Tamar field in a Lower Miocene structure in the Levantine Basin. Estimated reserves are reported to be 6.3 Tcf.

Global exploration in 2009 located nearly 500 new fields outside inland U.S. and Canada, and 160 of these were offshore. Chakhmakhchev emphasized that the largest and most prolific offshore producing regions are often adjacent to and/or extensions of onshore petroleum systems.

"For the companies, the deepwater and ultra-deepwater are the only areas where you can find significant discoveries again," he noted. "Also, the majors and super majors have a competitive advantage in this environment – it's where they can go and show their strength."

"The bottom line is we have to go deepwater," he said. "We have to go deep to find the oil and gas."

"There's no alternative."

UKRAINE

New Seismic Data Skifska Area, Black Sea



Under an agreement with the Ministry of Environmental Protection of Ukraine and Polar Trade & Research Associates Ltd., Polar Trade intends to acquire a new 2D seismic survey in the Black Sea.

The new survey will provide excellent coverage over the Skifska Area, which has been subdivided into 33 smaller blocks prior to the licensing round, and will complement the existing BSR-2005 survey, acquired by Polar Trade & Research Associates Ltd. in 2005.

Further information

If you require further information about this survey, please contact either:

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Chris Hopkins will present the luncheon talk, "Global Challenges in Shale Reservoir Development: Why a Statistical Approach Won't Work," at 11:30 a.m. Tuesday, Sept. 14, at the AAPG International Conference and Exhibition in Calgary.

New: Exploring for shales

U.S. Shale Expertise Now Being Exported

By LOUISE S. DURHAM, EXPLORER Correspondent

Industry enthusiasm for shale gas (and oil) plays just keeps escalating – despite challenges from some who question the safety of hydraulic fracturing technology – and the interest is going global.

Shale action is now acquiring a foothold internationally, where hopes are high for perhaps a repeat of what is happening domestically.

Shale or unconventional gas potential reportedly has been identified in numerous regions outside the United States:

- ▶ Canada.
- ▶ Europe, including Austria, France, Germany, Hungary, Italy, Poland, Netherlands, Romania, Spain, Sweden, Switzerland and the United Kingdom.
- ▶ China.
- ▶ South Africa.
- ▶ Morocco.
- ▶ Russia.
- ▶ Ukraine

In the United States, international firms have been striking deals with American companies who are high up the learning curve in shale drilling, completion and production. This will provide the overseas companies with considerable expertise to utilize back home.

This expertise will be a must-have when taking on the shales in other countries.

"There's certain technologies, especially on the completion side in horizontal well multi-stage completions, that are being done in North America," said Chris Hopkins, vice president of unconventional resources at Schlumberger.

"A lot of these shale deals are to try and understand those techniques to use them overseas."

Don't lump all shales together. These are mighty quirky rocks with lots of variable characteristics, including TOC, porosity, brittleness, indigenous fracturing, etc.

"The high level of activity has not necessarily optimized developments in the North American shale basins because each of the shale plays is unique," Hopkins said. "The well factory approach attempts to make one size fit all."

"While the shale plays are attracting the most attention, the challenges of other unconventional reservoirs are similar," he noted. "Intense competition and steep learning curves mean success is not guaranteed, especially when the outlook for natural gas prices remains so uncertain and technology is advancing rapidly."

A New Game

Hitting it big in shales overseas will require a lot of homework – and some dogged determination.

Internationally one must actually explore for the shales, which is a one-eighth from the domestic scene. In the United States, numerous wells have drilled through shales over the years on the way to other targets, so it's unnecessary to explore for them.

"No one (internationally) has really explored for unconventional shale before," Hopkins said. "How do you find the sweet



HOPKINS



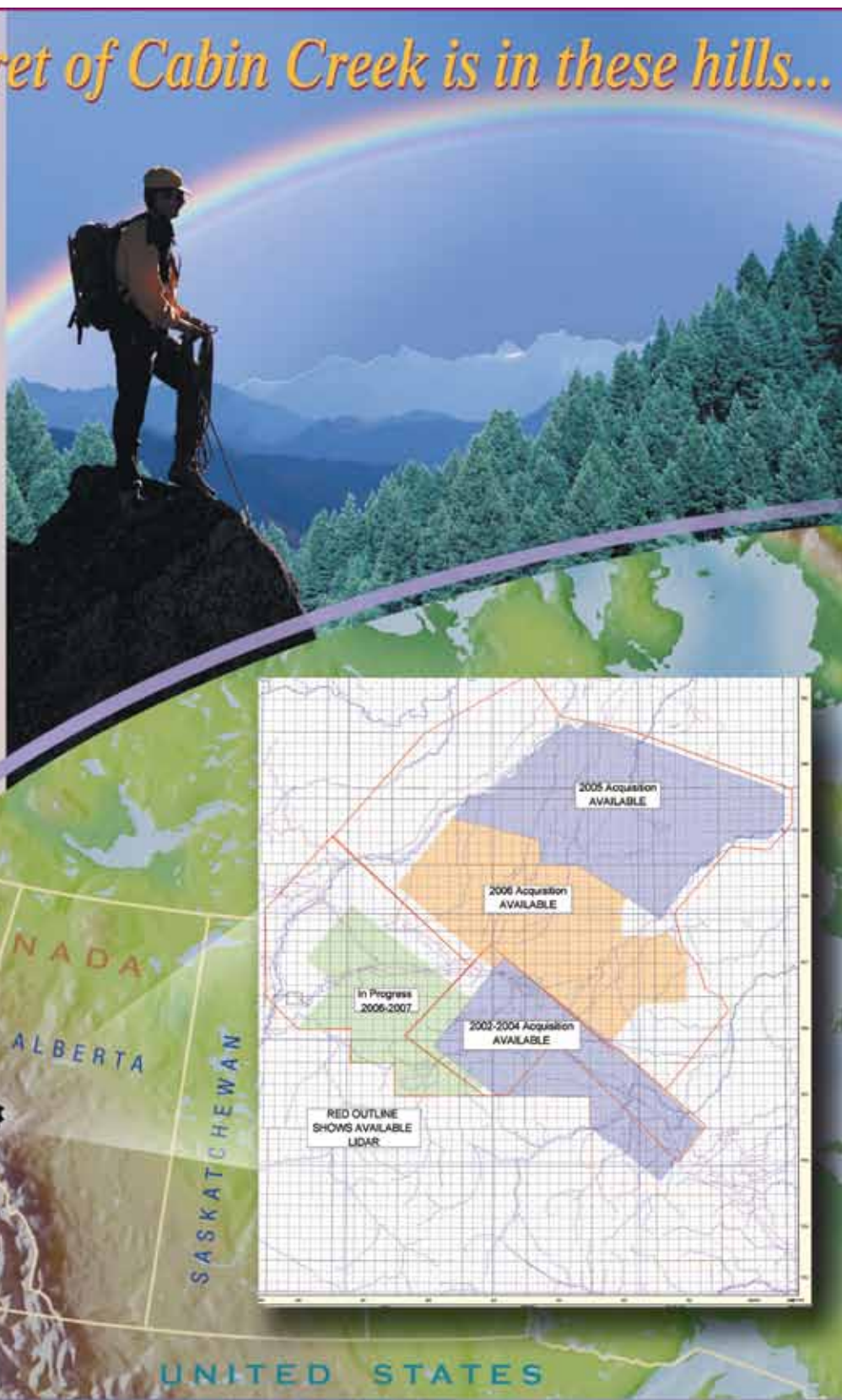
Graphics courtesy of Schlumberger

Expertise gained in exploring for gas shales in the United States is being exported to countries around the world.

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New Ideas for New Frontiers

See Shale Gas, page 27



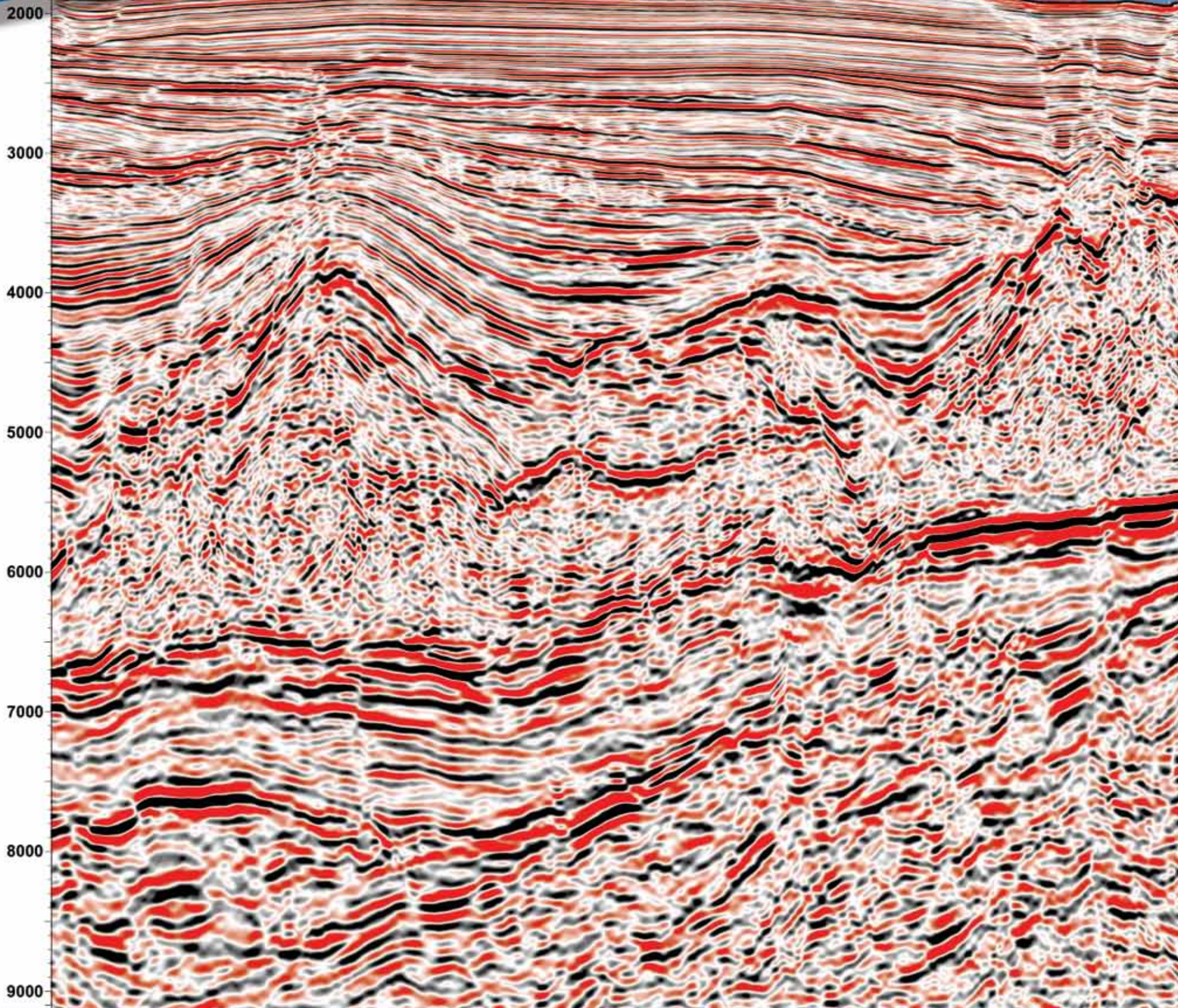
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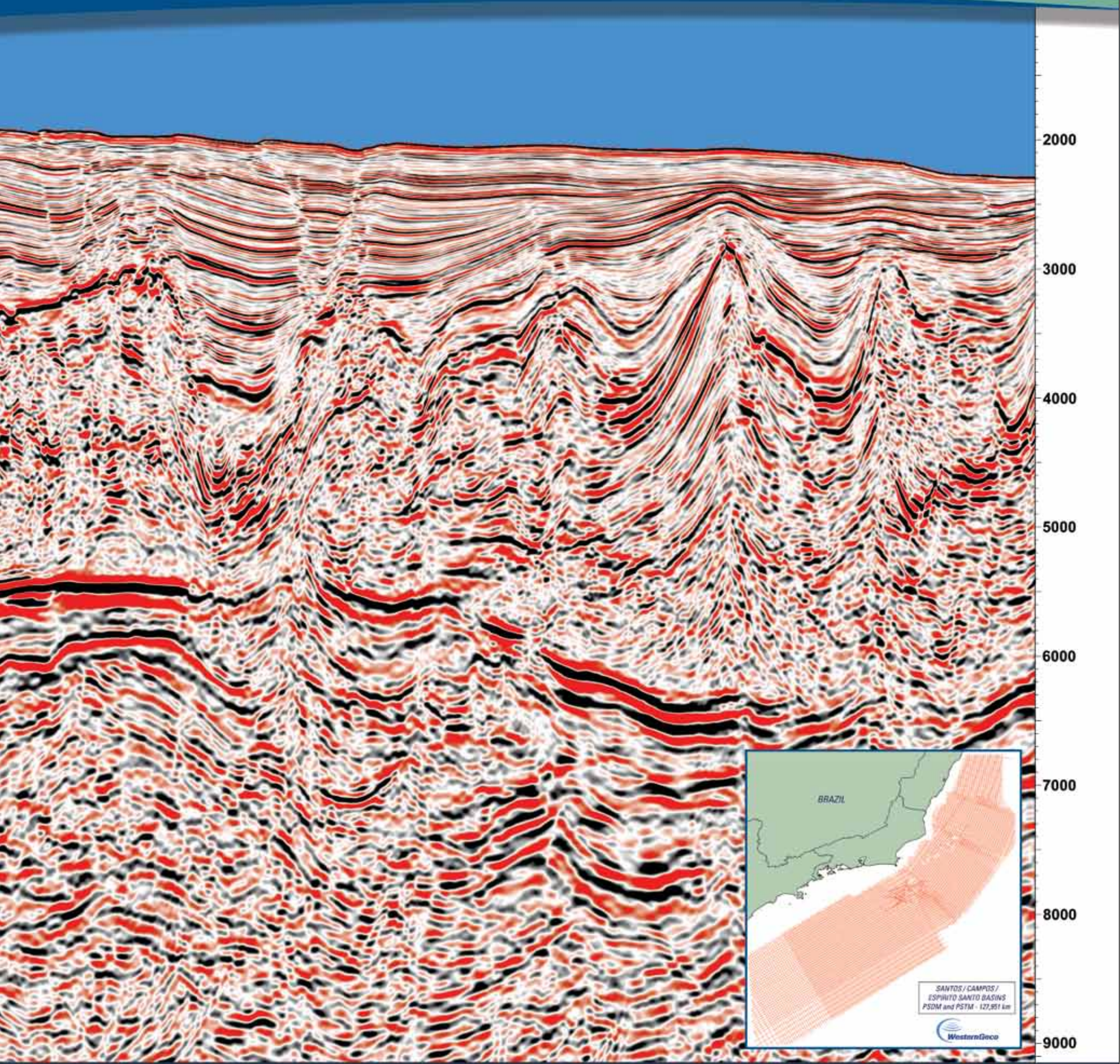


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In fact, it IS the hills

Top Attraction Is 'As Old as the Hills'

By BARRY FRIEDMAN, EXPLORER Correspondent

Most of what is being offered at the upcoming AAPG International Conference and Exhibition in Calgary, Canada, is cutting edge, 21st century modern.

But one of the top attractions is likely to be a showcase as old as rock itself.

"Cutting to the Core of Our Business," a two-day core conference at the ERCB Core Research Center in Calgary, will be offered Sept. 16-17, immediately after the ICE conclusion.

To those who value the basics of the science, this is the place to be.

"In its most basic form," says AAPG member Nathan Bruder, "the science of geology is rooted in our ability to physically look at and interpret rocks."

Bruder is co-chair for the conference, along with fellow Statoil Canada geologist and AAPG member John Cody.

Canada's ERCB (Energy Research Conservation Board) Core Research Center is an independent, quasi-judicial agency of the government of Alberta charged with the regulation of safe, responsible and efficient development of Alberta's energy resources, including oil, natural gas, oil sands, coal and pipelines.

Housed at Calgary University's Research Park, the CRC encompasses 18,000-square meters of core samples, drill cuttings (some hundred years old) and drilling and completion information from oil and gas wells throughout the world.



Photo courtesy of Jennifer Wagner

The ERCB Core Research Center in Calgary is the world's largest and most functional facility of its kind - 18,000-square meters of core samples, drill cuttings and well information.

It is the world's largest and most functional facility of its kind.

Specifically, CRC is available for drill cutting and core research, meetings and seminars, and core cuttings and loans. Data and research are available as well as rentals of equipment, from microscopes to hot plates.

Something Special

Participants who attend the two-day core seminar in September will get a

first-hand look at all the treasures found within the facility: 78,000 drillings kept in 18.5 million vials; 1,650 kilometers of core samples in more than 1.3 million boxes.

Some of the material is as old as the profession itself, like a cutting from a well drilled in 1911 and a core from 1925.

To Bruder, the CRC is invaluable.

"Modern technology, while powerful, does not diminish the importance of core and cutting material," he said, adding that the CSPG conference and tour will focus on the unconventional, frontier and

international hydrocarbon systems.

"Viewing core and cutting materials allows the geoscientist to directly observe key aspects of the reservoir," he added, "such as detailed sedimentological and biological structures, porosity and permeability relationships and mineralogical changes."

It is something that only a few facilities have the wherewithal to do.

"Without facilities such as the Core Research Centre," Bruder said, "the storage and archiving of core material would be left to industry operators, many of which hold varying levels of importance in the core data."

Translation: Not everyone may place a high priority on core preservation.

"As the search for hydrocarbons becomes more difficult, access to core material becomes even more important," he continued. "As unconventional plays gain strength within industry, the ability to access and evaluate core material is essential."

International Samples

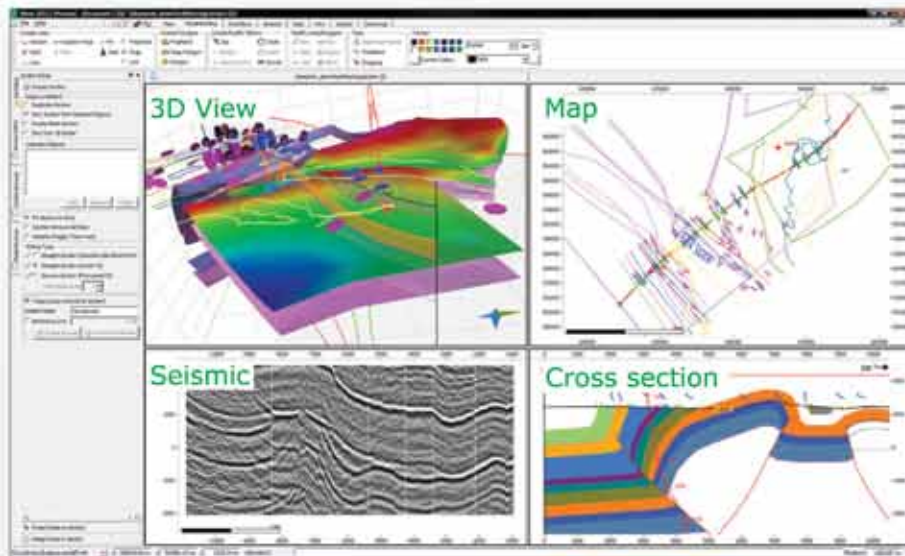
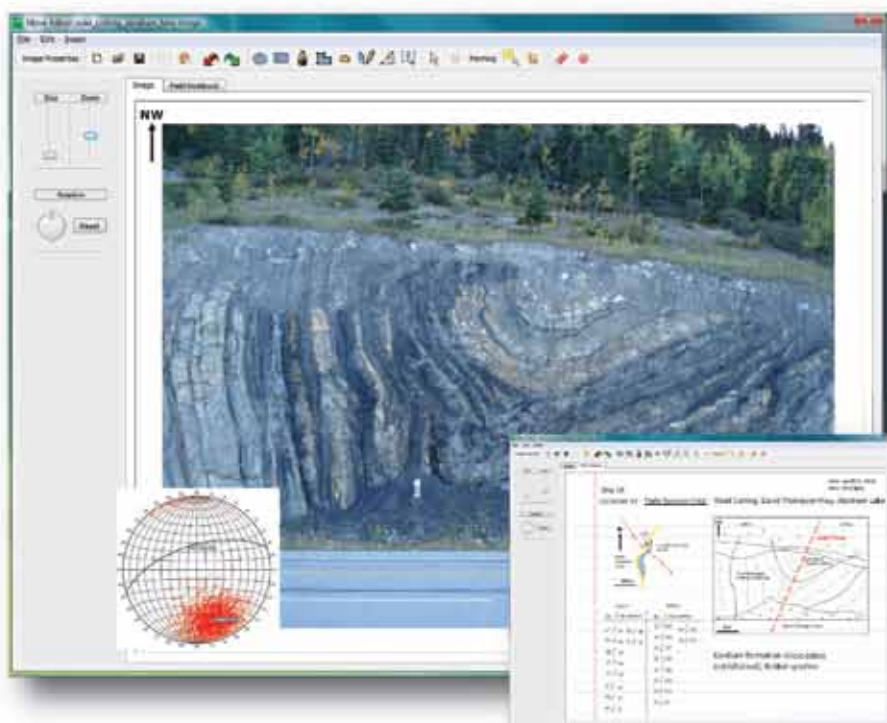
The quantity of what's on hand, however, is just part of the story. Companies - primarily from Canada, though there are samples from international operators - bring their

Continued on next page



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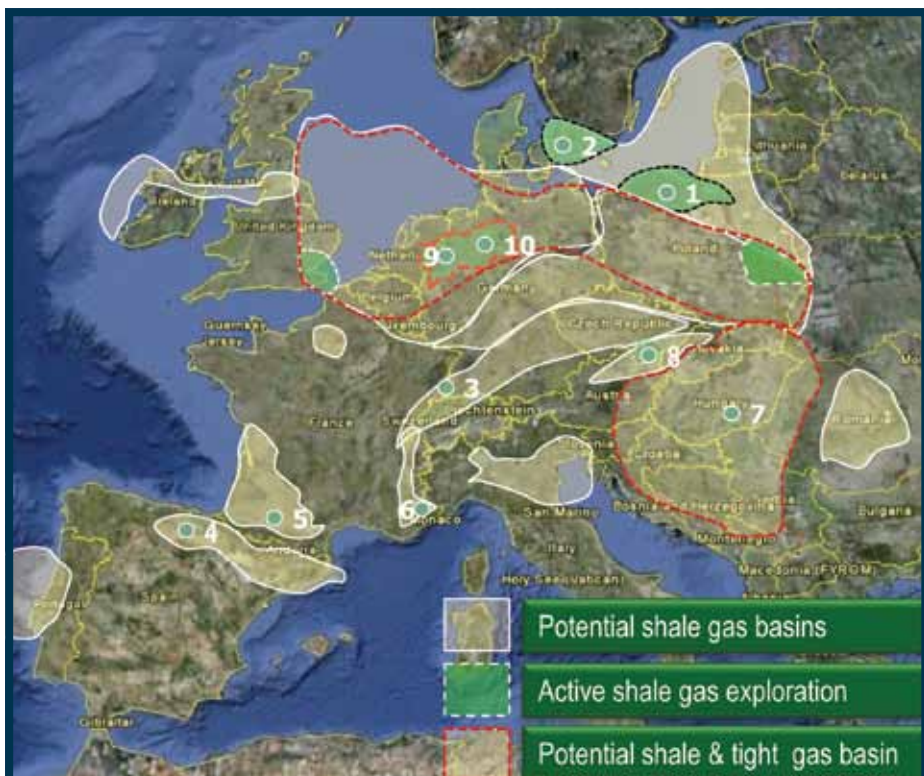
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Shale gas exploration is no longer just a U.S. priority – countries around the world are joining the hunt, including some areas in Europe that hold huge potential.

Shale Gas from page 22

spots when you have a million acres leased on land, say, in Poland, and you can drill three wells, yet only five wells have drilled through it in the last 100 years? Where do you go?

"It will take a lot more upfront geological and geophysical understanding and drilling a few exploration type wells to understand what are the sweet spots, what is the driving facies," Hopkins said.

"The best facies are different in all the different shales in the U.S., so you expect it to be the same way internationally," he noted.

"You don't look for siliceous facies in the Bakken shale, for instance, because that might not be the best."

Challenges and Drivers

There's potential for considerable seismic activity overseas. Much of this will be the less expensive 2-D to home in on promising areas; smaller 3-D shoots will

then be implemented only in these locales to minimize cost.

Hopkins emphasized that the limited availability of seismic and well data overseas compared to North America will require a much more structured approach to exploration and delineation.

Market drivers, infrastructure and geopolitical issues will influence the expansion of unconventional plays overseas.

"The key driver is political," Hopkins said, "governments who want to embrace it and push for it. That drive will be needed initially to get things moving.

"It's for the indigenous natural gas source as opposed to imports," he noted, "and that will allow good leasing terms, so that's the number one issue.

"Then there's the resource itself, whether you have it or not," Hopkins continued.

"The presence or absence of service infrastructure and whether or not you can build this properly is another issue to be dealt with," he said, "as are environmental concerns.

"Shale E&P won't be easy overseas," he said, "but maybe easier in some countries than others." **E**

Continued from previous page

samples to CRC because of the equipment available to view them and the data and research material on hand to put them in perspective.

"Viewing core and cutting materials," Bruder said, "allows the geoscientist to directly observe key aspects of the reservoir such as detailed sedimentological and biological structures, porosity and permeability relationships and mineralogical changes."

Something, he added, that does not occur with imaging alone:

"These key features of the rock cannot be directly imaged or evaluated using well logs or seismic."

The core conference will highlight the unique place that CRC occupies as a repository for the history of geology in the 21st century – especially in core displays from unconventional exploration in tight oil sandstones of western Canada and tight gas sandstones and shales of

Canada and the United States.

Cores from conventional frontier exploration such as the Canadian Arctic, the North Sea, the Barents Sea and countries such as Peru and Yemen also will be on display.

"Attendees to the core conference will be able to directly view core material, in conjunction with formal presentations and poster displays and meeting with authors," Bruder said.

The ERCB is designed to make energy resource data available at an early stage and then to share that information to companies of all sizes so they can all compete on more equal terms, avoiding past mistakes and ultimately producing energy in an orderly safe way.

"Unlike conventional formal presentations, the core displays are interactive in nature," Bruder said.

The interactivity extends to those presenting, those participating and, Bruder added, "more importantly, the rock itself." **E**

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Photo courtesy of UTEP University Communications

Cédric John meets University of Texas-El Paso president Dr. Diana Natalicio at the barbeque organized there for the stranded Imperial College students.

Stranded? No problem

UK Students Get By – With A Little Help From New Friends

By CÉDRIC M. JOHN, PETER ALLISON and TARA C. LA FORCE

Just because you study Mother Nature doesn't mean she can't play a trick on you.

This is what 53 British master's petroleum geoscience students plus four staff members from Imperial College London (ICL) discovered in April while visiting classical outcrops in the western United States.

The students were on their annual U.S. geological field course, which included visits to the Book Cliffs, Coal Cliffs and Moab area in Utah; the AAPG Annual Convention in New Orleans; and, finally,

a visit to the carbonate reservoir analogs in the Guadalupe Mountains of Texas and Carlsbad Caverns in New Mexico.

However, on returning to El Paso, Texas, they discovered – with less than 24 hours notice – that their flights to London had been canceled due to the Iceland volcano plume, and that it would take at least a week before they could return home.

The students were due to take their final master's exams a mere two weeks after their original return date.

The 10-day delay generated an enormous amount of stress as the students did not have ready access to computer or their coursework. In addition, some students were experiencing personal hardships linked to being away on a field course for four long weeks.

"I'm going to miss my sister's wedding on Wednesday," worried one student.

Another said, "I have a five-month-old baby at home. I can't believe I'm going to have to wait another week before I can see him again."

UTEP to the Rescue

After taking care of the obvious crisis at hand, such as finding lodging for 60-plus people and rescheduling flights, the Imperial College staff contacted the geology department at the University of Texas in El Paso (UTEP).

The UTEP team responded to the call for help with a generosity that far surpassed any expectations that we may have had beforehand.

For example, students were given free access to computers with temporary UTEP accounts, and shuttles were organized to ferry students from the hotel to campus.

There were other surprises – most notably a barbecue, thrown by two staff members, where students and staff from both institutions could meet and socialize. Numerous social events also were offered by university staff and local politicians.


In the end, the unselfish and exceptionally kind action of the UTEP staff and students turned a potentially disastrous situation into one that the ICL group will forever cherish.

On a practical note, it allowed our students to prepare for their exams while at the same time establishing new contacts with colleagues from the other side of the world – and as a result, long-term friendships were created.

Postscript

Imperial College will continue with its established tradition of taking its MS petroleum geoscience students on fieldtrips to the United States and to the AAPG Annual Convention. However, in the future it also will include annual return visits to UTEP to reciprocate, in a small way, the exceptional generosity that we received in El Paso.

We also plan to sponsor a trip by UTEP staff and students to visit Imperial College in London later this year and to look at other areas for future academic collaboration.

So, the chaos of April's Icelandic volcanic ash cloud has had at least one silver lining – which we hope will continue long into the future. 

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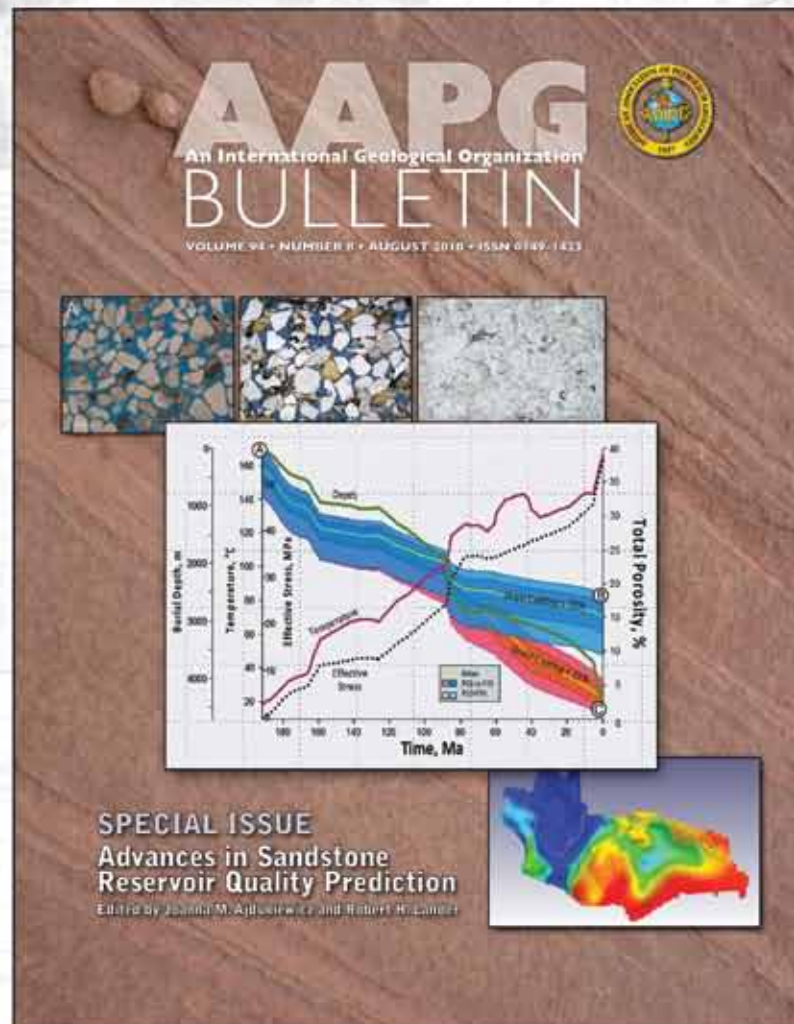
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Reservoir-quality predictive models will be a useful element of risk analysis until remote-sensing tools are invented that accurately measure effective porosity and permeability ahead of the bit. The new reservoir quality models differ from previous approaches in that although incorporating theory-inspired algorithms, they include terms with values that are explicitly designed to be calibrated by, and tested against, data sets of high-quality petrographic analyses that are linked to thermal and effective-stress histories.

This issue of the AAPG Bulletin highlights recent advances in a new generation of reservoir quality models that have successfully predicted porosity and permeability in diverse siliclastic reservoirs under many different burial conditions. Topics covered include improving reservoir quality predictability; understanding diagenetic illite; a promising predictive model; grain coats and reservoir quality; predicting quality with Touchstone™ simulations; and modeling diagenetic alteration.



Members may access the AAPG Bulletin online at:
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Also, submit your next paper for consideration via www.aapg.org/bulletin.

PROFESSIONAL NEWS BRIEFS

Joseph "Joe" Alcamo, to geophysicist V, Denbury Resources, Plano, Texas. Previously senior staff geophysicist, Encore Acquisition, Fort Worth.

Paul B. Basan, to technical director, Corex UK, London, England. Previously manager-petrophysics, RPS Energy, Aberdeen, UK.

Larry J. Cavallo, to vice president-engineering, Consol Energy, Jane Lew, W.Va. Previously director, reservoir engineering and planning, Dominion Exploration & Production, Jane Lew, W.Va.

William L. "Bill" Fisher was honored with the Colonel Edwin L. Drake Legendary Oilman Award from the Petroleum History Institute – its most prestigious award. Fisher

is a past AAPG president and is chair of the AAPG Foundation. He is with the Jackson School of Geosciences at the University of Texas at Austin.

Ted Flanigan, to manager-exploration operations, City Oriente Inc., San Antonio. Previously independent geologist, San Antonio.

Joan Flinch, to Northern Latin America new ventures manager, Repsol Services USA, The Woodlands, Texas. Previously West Africa asset manager, Repsol Exploración, Madrid, Spain.

Richard E. Goings, to vice president-geosciences, Consol Energy, Canonsburg, Pa. Previously general manager-geosciences, Dominion Exploration &

Production, Jane Lew, W.Va.

Marc H. Helsing, to vice president-exploration and business development, Focus Exploration, Houston. Previously principal, Dynamic GeoVentures, Houston.

Bill Hobbs, to senior geological adviser, Noble Energy, Houston. Previously geological adviser, Devon Energy, Houston.

Tiffany Hopkins, to geoscience coordinator-Haynesville West, Chesapeake Energy, Oklahoma City. Previously senior geologist, Chesapeake Energy, Oklahoma City.

Dewi J. Jones, to exploration manager-Caribbean region, Repsol, The Woodlands, Texas. Previously exploration manager-Peru, Repsol, Lima, Peru.

L. Mark Larsen, to geology domain champion, Schlumberger, Jakarta, Indonesia. Previously principal geologist, Schlumberger, Dallas.

Marc Lawrence is retiring as senior vice president-data licensing division, Fairfield Nodal, Sugar Land, Texas. Lawrence resides in Sugar Land, Texas.

George P. Mitchell received the Lifetime Achievement Award from Gas Technology Institute for his accomplishments in unconventional gas resources. Mitchell is former chairman for Mitchell Energy & Development, which was acquired by Devon Energy in 2002, and received a 2010 Special Award from AAPG.

Chandler "Chip" A. Oakes, to vice president of geosciences, Endeavour International, Houston. Previously managing director-new ventures, Forest Oil Corp., Denver.

Trent Rehill, to vice president-geosciences, Kulczyk Oil Ventures, Calgary, Canada. Previously manager-geology, Kulczyk Oil Ventures, Calgary, Canada.

Dick Selley has been awarded the 2010 Coke Medal by the Geological Society of London, given in recognition of his "substantial body of research and service to the community." He is emeritus professor of petroleum geology and senior research fellow at Imperial College, London, and in 1976 he created the Imperial Barrel Award, which is now organized by AAPG.

Daniel L. Smith has received SIPES Honorary Membership, the society's highest honor. Smith, a past AAPG president, is with Sandalwood Oil and Gas, Houston.

Roger Soderberg, to chief geologist-north Louisiana conventional resources, Petrohawk Energy, Tulsa. Previously exploration adviser, Samson Resources, Tulsa.

Michael Sturdy, to senior geologist, St. Mary Land & Exploration, Houston. Previously geologist, ConocoPhillips, Houston.

Ron Surdam, to director, Carbon Management Institute, University of Wyoming School of Energy Resources, Laramie, Wyo. Previously state geologist, Wyoming State Geological Survey, Laramie, Wyo.

Terngu Utim, to senior geoscientist, Blueback Reservoir Americas, Houston. Previously senior consultant, Roxar, Houston.

John M. Warn, to president, Thomasson Partner Associates, Denver. Previously vice president of geoscience, Thomasson Partner Associates, Denver.

Steve Warshauer, to director of geology, BNK Petroleum, Camarillo, Calif. Previously senior geological adviser, Devon Energy, Houston.

Christian Zwach, to exploration manager-deepwater Norwegian Sea, Statoil, Stavanger, Norway. Previously team leader-carbonates and basin analysis, Statoil, Oslo, Norway.



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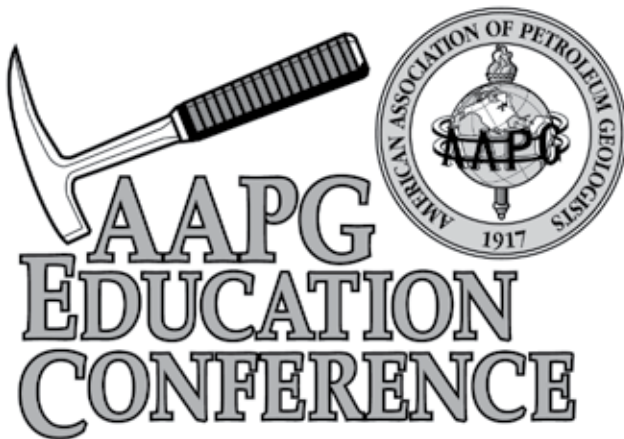
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WASHINGTON WATCH

Some Summer (or Winter) Reading Ideas

By DAVID CURTISS

Why We Hate the Oil Companies: *Straight Talk From An Energy Insider*, by John Hofmeister. Palgrave Macmillan; 249 pages; \$27.
Power Hungry: The Myths of "Green" Energy and the Real Fuels of the Future, by Robert Bryce. Public Affairs; 394 pages; \$27.95.



CURTISS

No book on energy can be truly comprehensive and readable. But these books both contribute to the discussion.

The U.S. capital is built on a swamp. During August it certainly feels that way. Sweltering heat and humidity set in, and no seersucker suit or mint julep is a match for it. It's a good excuse for politicians to get out of town for a break.

Perhaps you, too, get the chance to take a break from work this month. Enjoy it. And if you are looking for a good book or two, I've got some recommendations.

* * *

John Hofmeister is well known to many in the oil and gas industry as former head of Shell's U.S. operations. Trained as a political scientist and then working at General Electric, Nortel and AlliedSignal before coming to Shell, his background is one of planning, preparation and pragmatism.

As president of Shell he frequently visited Washington, D.C., to speak with policy makers, testify on Capitol Hill and observe first-hand the uneasy relationship between the energy and political worlds. His testy exchange with Rep. Maxine Waters (D-Calif.) on her desire to see the

U.S. oil and gas industry nationalized is a good example.

In the book's best chapter he explores the differences between "political time" and "energy time." The nature of the political cycle, with elections at two-, four- and six-year intervals, does not mesh well with the energy cycle, which requires planning decades in advance. This difference is a principal cause of the tension between the two worlds.

Another cause of tension is that planning, preparation and pragmatism – hallmarks of good business management – are not characteristics typically associated with U.S. policy-making. Instead politicians usually wait until disaster looms before taking action.

But you cannot do that with energy, Hofmeister warns, assuming the mantle of a modern-day Jeremiah.

As founder and president of Citizens for Affordable Energy, today he crisscrosses the country urging immediate action to proactively design our energy future – or suffer the consequences.

* * *

Despite describing himself as a "raging centrist," Robert Bryce takes a less earnest tone in his book. As an author and journalist – he is managing editor of the Energy Tribune – born and raised in Tulsa, Bryce has had a life-long fascination with the energy industry.

He is focused on data. His book is full of numbers, graphs and energy unit conversions, sometimes to distraction. But Bryce contends that the numbers tell the story of what is really happening in the energy sector, and that few people – including many self-styled energy experts – have bothered to look at them.

"Four imperatives" drive energy choices: power density, energy density, cost and scale. And the reason that we use fossil fuels and nuclear energy is because they meet these standards.

He devotes the middle of the book to how many energy technologies proposed to replace fossil fuels do not, and will likely never, achieve these requirements. It's a

list of popular choices, including wind, solar, biofuels, and carbon capture and sequestration. And while Bryce clearly relishes poking holes in the many energy and technology myths currently accepted as fact, he insists it is where the numbers take him.

What the numbers also show is that social and market forces already are driving the transition to a new energy future. And the transition is to cleaner, less carbon intensive fuels. It's already happening, Bryce says, and the pathway is natural gas and nuclear energy.

Bryce is not opposed to renewable energy. In fact, both he and Hofmeister support a broad, inclusive portfolio of energy sources. But neither believe that renewables alone can deliver the affordable energy that consumers demand.

And that raises an important issue that receives short-shrift in today's energy debate: Using energy is a good thing. Energy consumption is linked to economic development, which is linked to wealth creation.

Lifestyles in the developed world demand increasing amounts of energy, according to Hofmeister. "The Future is More, Not Less," is the title of his first chapter.

We are not addicted to fossil fuels, Bryce argues. We're addicted to prosperity. And helping less developed countries raise their standards of living requires access to

Continued on next page



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August 10-12, 2010 • Denver, CO

New Ways to Look at Old Data: New Pay Zones, Increased Production, Expanded Regional Plays

November 8-9, 2010 • Houston, TX

Deepwater and Ultra Deepwater Reservoirs in the Gulf of Mexico

January 18-19, 2011 • Houston, TX

There are many carbon capture and sequestration events, but very few where the lab meets the field, theory meets application, and all have an opportunity to discuss real cases, issues, and experiences.

We will begin with geological characterization and analogs, and will evaluate the relative capacity of different reservoir rocks to store CO2. We will examine physical processes within reservoirs and in CO2 storage, and examine models, with respect to calibration, validation, and prediction.

Storage of CO2 will be addressed in presentations dealing with well integrity, storage sites, and injection wells. Geochemical and geomechanical concerns will be addressed in both storage and enhanced oil recovery projects.

Experiences using CO2 flooding to increase hydrocarbon production, and to work with residual oil zones will be the focus of a full session. We will conclude with discussions of lessons learned from experiences in the field, lab, and with the regional consortia.

How are new ways to look at old data resulting in new pay zones, increased production, and even new regional plays? How can you find and determine the best way to produce oil that's been "left behind?"

Learn how to find new, overlooked plays, extend the limits of existing plays, enhance production, and improve operations. Discuss case studies and lessons learned. Network in a dynamic, discussion-based setting.

Session topics include new analytical techniques for reviewing geological, geophysical, petrophysical, and geochemical data; new technologies to use in old fields or overlooked zones.

Join us as working professionals (geologists, geophysicists, and engineers) focus on getting the oil and gas out of deep-water reservoirs in the Gulf of Mexico and how those efforts could be dramatically improved by closing technology. Better assessment of how much oil and gas is recoverable in these challenging environments could also be improved by focused integration of geological, geophysical, and engineering disciplines. The sessions focus on practical solutions to real-life problems.

Proposed Themes and Topics:

- Challenges in Deepwater Appraisal and Development
- Integrating New Technologies for Better Understanding of Reservoirs
- Using Engineering Information in Conjunction with Geology, Geochemistry, and Geophysics
- Geology and Geophysical Information of Direct Benefit to Drilling and Reservoir Engineering
- Deepwater Exploration Frontiers
- Cross-Disciplinary Integration of Information and Technologies.

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For information on these AAPG GTW's, please log on to our website at <http://www.aapg.org/gtw>.

E-Learning Embraces New Technology

By JANET BRISTER, Website Editor

Recently I was reviewing some of the information in the AAPG Blogzone (blog.aapg.org), and one particular post caught my eye: Susan Nash, AAPG's director of education and educational development, writes the "Learn!" blog, and one of her recent writings featured the many-faceted aspects of how you can learn through AAPG's educational offerings.

Susan has pursued new methods to bring education to the reach of AAPG members worldwide. This means creative use of technology provided through our computers.

One such creative use are AAPG's e-symposia, which incorporate multiple sensory methods to facilitate a better learning experience by accommodating different learning styles, including visual, auditory and kinesthetic.

They also help people develop a learning community and feel connected as they learn at a distance.

The audible instruction of the lecture through podcasts and MP3 files are supplemented with the visual elements – articles, PowerPoints and maps in the forms of PDFs – that support what you are hearing.

You also have access to the comments, questions and discussions that were captured during the original occurrence of the e-symposium.

Each symposium's session – about one hour each – is captured and included with the support materials. This includes questions and answers from those who participated, and questions to answer to qualify for continuing education units and

professional development hour credits.

In the education area of aapg.org are links to several online learning experiences, and every month a new e-symposium is featured.

But it doesn't stop there because, as mentioned, these courses are recorded and offered for your review.

At the top of the list are the upcoming e-symposia followed by those that have already taken place. The content is focused on current technology and industry challenges.

They include such titles as "All Gas Shales Are NOT the Same and Why You Should Care," and "Mapping Natural Fractures Using 3-D Seismic and Well Data."



Since this information is available at all times these are excellent resources for your electronic library.

In Susan's blog she talks of technology transforming us – how it multiplies us and expands our innate abilities. In Susan's words, "It's all about putting yourself in a position to obtain the kind of knowledge and skills that you need."

AAPG has transformed its education and professional development area of AAPG to offer today's geoscientists a transformed learning experience – one that may expand your ability to "envision, imagine, connect and implement" new ways and methods within your field.

Why not see what "Learn!" has to offer, at blog.aapg.org/learn. From there explore the potential of online learning at aapg.org education.

Good browsing!

Continued from previous page

reliable and affordable energy. We need to do this.

But how do we get to this energy future? What is the path?

Hofmeister stumbles here. As an executive he sees the solution in careful planning, preparation and pragmatism – the way you'd tackle a business problem.

He observes that the energy industry in the United States is highly regulated, so you cannot simply rely on market signals to achieve societal goals. He also contends that government is "broken" – and yet argues for the creation of a new independent government agency, modeled after the Federal Reserve, to provide the

planning and coordination of the nation's energy security and environmental protection.

Bryce acknowledges the role of government in the energy sector, and doesn't downplay the difficulty of reaching consensus – but he does not recommend a broad restructuring of government. Instead he suggests policies to incentivize natural gas and nuclear power development and use, U.S. oil and gas development, energy efficiency, and renewable energy and energy storage technologies.

* * *

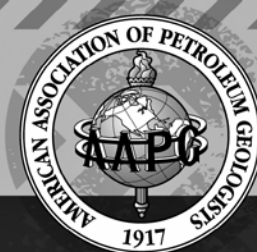
Concern about our energy future is not misplaced. A lack of coordination and

foolish policy choices could make this transition a convulsive, uncomfortable experience. But if we are able to engineer a smooth transition in coming decades, it will be because of increased public awareness and understanding of the issues.

No book on energy can be truly comprehensive and readable. But these books both contribute to the discussion. Read them and pass them along to a friend or neighbor.

Bryce summarizes his personal energy policy very simply: "I'm in favor of air conditioning and cold beer."

That sounds like a sensible way to not just endure but enjoy these dog days of summer.. ☺



Attend a GTW in your area!

MIDDLE EAST

Basin and Petroleum System Modeling in the Middle East: Applications and Case Studies

11-13 October 2010 • Dubai, UAE

MIDDLE EAST

The Geoscience of Exploring and Developing Tight Gas in the Middle East

24-26 January 2011 • Beirut, Lebanon

ASIA-PACIFIC

Pore Pressure and Related Issues — Special Focus: Asia-Pacific

October 27-29, 2010 • Singapore

Over the last decade, three-dimensional (3D) imaging/modeling of the subsurface through time have co-evolved and emerged as a major research focus of the petroleum industry. Virtually all major oil companies and government and academic institutions recognize the need for 3D petroleum system models because they:

1. Facilitate integration and visualization of geologic processes and communication with stakeholders
2. Add value by converting static data to dynamic processed data and interpretations
3. Help to reduce exploration risk and to highlight prospective exploration areas
4. Archive data (data loss due to personnel attrition and reorganization is a major cost factor)

With a focus on the Middle East, which hosts enormous hydrocarbon reserves, this conference aims at providing an overview of the state of the art in petroleum systems modeling as well as highlighting open questions and new techniques

Volumes of gas in place in tight sands are estimated to several hundred trillion cubic meters distributed all over the world. The Middle East concentrate a large part of these volumes with known discovered accumulations in the Ordovician/Silurian and carboniferous sandstones and low permeability Jurassic carbonates. However, exploration results of the last 25-30 years suggest that successful appraisal and development of tight gas reservoirs requires a careful synthesis of many factors, both geologic and economic.

This Geosciences Technology Workshop event will provide a venue to build understanding on best practice methodologies used to assess resources in unconventional tight gas reservoirs including tight gas sandstone, tight gas carbonates, fractured reservoirs and shale gas. This workshop will build knowledge on the common challenges and potential solutions to assess resources through the exploration, development and production phases.

The Asia-Pacific region is an area of extensive opportunity and capacity for growth for oil and gas production. However, the industry faces many challenges in finding and developing the region's significant resources. The Asia-Pacific region contains some of the world's deepest and most rapidly formed basins and associated high magnitude overpressures. Such extreme overpressures pose significant hazards for drilling, exploration, completions and production.

Consisting of presentations, dynamic discussions, exciting cross-disciplinary perspectives on new developments and applications in pore pressure prediction, with an emphasis on case studies in the Asia-Pacific region. This workshop will be a great place for experienced geoscientists to discuss published papers, and for young geologists to become familiar with the key issues currently facing the industry. The event focuses on integrating geological, geophysical, and engineering information. Presenters may also discuss the impact of technology on economics. Presentation proposals/titles now being accepted — come share your expertise.

AAPG MIDDLE EAST • KARIN BOURGOIN: Tel: +973 17553043 • Fax: +973 17553029 • E-mail: kbourgoin@AAPG.org

AAPG ASIA PACIFIC • ADRIENNE PEREIRA: E-mail: apereira@AAPG.org

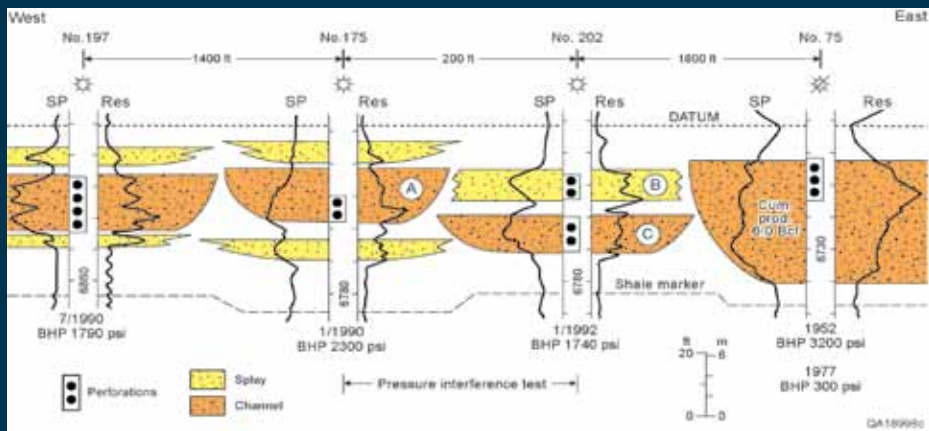


Figure 1 – Well logs acquired in wells where a reservoir characterization study was done. Note wells 175 and 202 are separated by only 200 feet BHP (bottom hole pressure); 1/1990 = January of 1990.

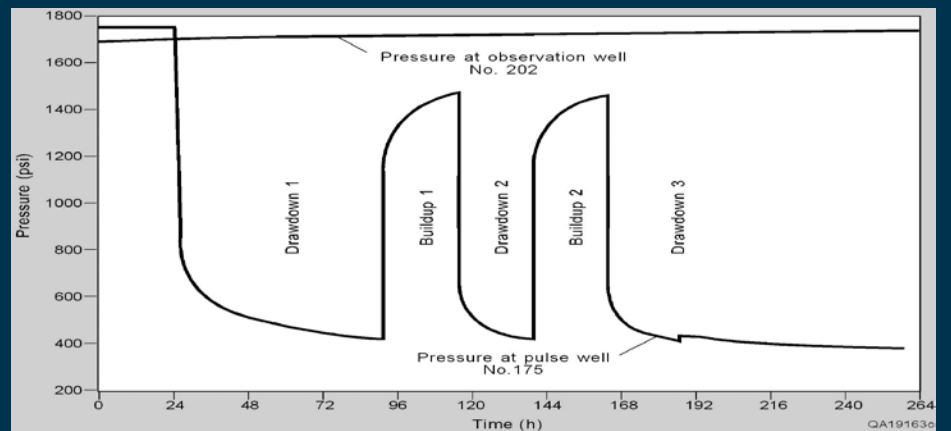


Figure 2 – Pressure interference data measured between unit A in well 175 and units B and C in well 202. The lack of a pressure response in well 202 implies a compartment boundary exists in the interwell space between the two wells.

GEOPHYSICAL CORNER

Compartments Can Challenge Logic

By BOB HARDAGE

All oil and gas reservoirs are compartmented to some degree. Lateral barriers to fluid flow sometimes exist because faults disrupt and vertically displace hydrocarbon-bearing units. More common causes of reservoir compartment boundaries are lateral and vertical flow barriers created by depositional processes and post-deposition diagenesis.

In this article, we look at a reservoir compartment analysis done across a fluvial depositional system in South Texas.

The story involves a bit of humor, provides a dose of soberness, and serves as a case history that illustrates the challenges of reservoir characterization.



HARDAGE

The Situation

The logs displayed in figure 1 describe some of the sandstone units involved in this study, in which the objective was to develop exploitation strategies across a prolific gas-producing system.

Wells 175 and 202 on this log cross-section were near the center of a planned 3-D seismic survey and were separated by only 200 feet.

Stratigraphers intended to use the logs from these two close-proximity wells to start a reservoir compartment model that could be extended across 3-D seismic image space. They had the options of constructing a reservoir compartment model in which unit A in well 175 connected to only unit B in well 202, or connected to only unit C, or connected to both units B and C.

The Humor

To test which of these three possibilities was correct, pressure tests were done between the two wells:

- ▶ A pressure pulse was applied to the perforations across unit A in well 175.
- ▶ Packers were set in well 202 to isolate unit B.
- ▶ The pressure response in unit B was measured.

The packers were then set to isolate unit C in well 202, the same pressure pulse was again applied in well 175, and the response in well 202 was again recorded.

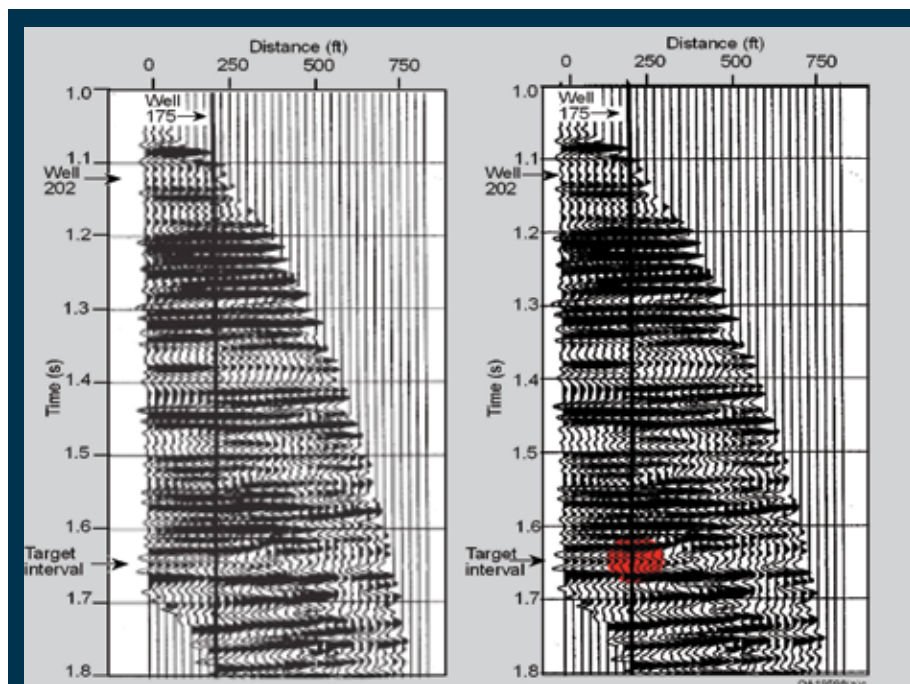


Figure 3 – VSP data acquired in well 202 to create an image spanning across well 175. These data have been processed to create stacking bins 25 feet wide. Reservoir units A, B and C defined on figure 1 are positioned in the reflection peak labeled "Target interval." Well 202, the VSP receiver well, is positioned at the first image trace on the left. The highlighted reflection waveform change that occurs beginning at an image position approximately 50 feet to the left of well 175 is assumed to be the compartment boundary between the two wells.



Figure 4 – Photo showing the proximity of wells 175 and 202. It is sobering to think a reservoir compartment boundary occurs in the short interwell distance between these two wells. In this photo, a zero-offset VSP is being acquired in well 175. For the data shown on figure 3, the receiver system was in well 202 and the vibrator source was far to the north of well 175.

The test results are displayed as figure 2 – as exhibited by the upper curve of this figure, no pressure variation was observed in either unit B or C.

The stratigraphers claimed the engineers could not do simple pressure-interference tests; the engineers claimed the stratigraphers could not correlate logs.

The outcome of the debate was that the pressure test program was redone.

The result after considerable time and cost was the repeat pressure interference tests produced exactly the same curves shown on figure 2. When these repeat test data confirmed the existence of an interwell compartment boundary between wells 175 and 202, friendly relations were restored to the project team and soberness began to pervade the study effort.

The Reason for Soberness

The possibility of a compartment boundary between wells 175 and 202 was not considered initially because of the close proximity of the wells. It was naively assumed these two wells had to penetrate the same reservoir compartment because they were only 200 feet apart.

However, the pressure test data are compelling evidence that an interwell compartment boundary is present.

If a compartment boundary cannot be recognized with log data spaced only 200 feet apart, how can a compartment boundary be predicted using logs acquired in wells at greater separation distances, which is the common well spacing strategy used in reservoir exploitation?

This sobering thought must be kept in mind when doing reservoir characterization studies.

Applying Seismic Technology

Geophysicists were challenged by their geological and engineering colleagues to image this elusive compartment boundary between wells 175 and 202. The later-to-come 3-D survey had already been designed and contracted to create 110-foot by 110-foot stacking bins, meaning the interwell space of 200 feet would be spanned by less than two image bins (that is, less than two image traces).

Thus, rather than relying on these 110-foot-bin seismic data for the analysis, a vertical seismic profile (VSP) was acquired that allowed the interwell space to be imaged with stacking bins having a width appropriate for resolving fine detail.

The resulting VSP image is displayed as figure 3.

One advantage of VSP imaging is that the distance between image traces can be adjusted to any desired value during data processing to enhance lateral resolution. In this instance the trace separation was arbitrarily set at 25 feet to produce eight image traces between wells 202 and 175, which allowed a more rigorous interpretation of interwell geology than could be achieved by relying on only two images traces from the 110-ft-bin 3-D seismic volumes used in this study.

These VSP data show a significant change in reflection waveshape for the

Continued on next page

FOUNDATION UPDATE

Trio Gifts Three Schools

Three AAPG members have joined together to provide three universities with subscriptions to the AAPG Datapages Digital Library.

Knut Henrik Jakobsson, of Stavanger, Norway, Dan Tearpock, of Houston and Foundation Trustee Associate Kevin Biddle, also of Houston, each contributed \$12,500 to the Foundation's Digital Products University Program to fund subscriptions for Bloomsburg University, Bloomsburg, Pa.; the University of California-Santa Cruz; and the University of Paz, Bolivia.

Their gifts provide each university with subscription to the AAPG Datapages library, and access to over 850,000 pages of maps and geosciences information – with entire geological society collections being added continually.

The gift will provide access in perpetuity to students and faculty at the schools.

* * *

In other Foundation news, the Board of Trustees recently approved two sizable grants to specially designated funds.

▶ A grant of \$50,000 was approved to support production of "The Bridge," a feature length documentary film that is currently in production.

"The Bridge" also has a permanent companion website that will educate the public about the transition from fossil fuels to alternative energies. The project's mission is to create a culture of energy education, so that consumers can make

wise energy decisions in the ways they live, the products they buy, the culture they shape – and to help ensure a secure energy future for all.

▶ A grant of \$80,000 was approved to support the AAPG BULLETIN, the Association's flagship, peer-reviewed technical journal.

For additional details of Foundation programs, visit foundation.aapg.org, or donate online at foundation.aapg.org/donate.cfm.

Contributions to the AAPG Foundation are tax-deductible for persons subject to U.S. income tax.

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 - Oct. 4 - Oct. 8 Principles of 2-D and 3-D Interpretation (Modules V and VI)
- Oct. 18 - Oct. 22 Overview of Seismic Exploration
- Nov. 1 - Nov. 5 Pitfalls and Principles of Mapping (Modules VII and VIII)
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Bartberger Wins RMS Levorsen

Charles E. Bartberger, with Questar Exploration and Production Co. in Denver, has been named winner of the Rocky Mountain Section's A.I. Levorsen Award for the best paper at the recent annual Section meeting.

Bartberger's paper was "Spontaneous Potential: Key to Understanding Continuous and Conventional Gas in Upper Cretaceous Sandstones, Deep Eastern Greater Green River Basin, Southwest Wyoming."


His co-author was Ira Pasternack, with EnCana Oil and Gas (USA), Denver.

Bartberger will receive his award at the next Rocky Mountain Section meeting, set June 25-29 in Cheyenne, Wyo.

Continued from previous page

thin-bed interval spanning units A, B and C that begins in the stacking-bin positioned approximately 150 feet (six image traces) away from well 202.

This variation in reflection waveshape, indicated by the highlighted circle, is assumed to mark the compartment boundary between the two wells.

Now when I get engaged in a reservoir characterization study, I look at the photo displayed as figure 4 to keep focused on the complexity of reservoir compartmentalization.. 



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To these people, and to those who have generously made donations in the past, we sincerely thank you.

With your gifts, the AAPG Foundation will continue its stewardship for the betterment of the science and the profession of petroleum geology.



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A A P G F O U N D A T I O N

Meeting Challenges

ASSURING SUCCESS



The Foundation has been a strong proponent of K-12 activities working to help fund many educational programs including AGI's very successful K-12 earth science curriculum and Earth Science Week

program. Geoscience leaders nationwide have lobbied school districts and state government to introduce or maintain earth science as a core subject. As a result, the need for K-12 earth science education, especially in middle and high school, is increasing.

To meet this critical need, the AAPG Foundation will create a new endowed fund to support earth science education to benefit future generations beginning at the K-12 levels.

The new K-12 Earth Science Education Endowment Fund is designed to meet four basic areas of need:

- Provide teachers, schools, parents and youth group leaders with training, information and supporting materials related to earth science and energy.
- Assist AAPG members by providing development of youth educational activity resources to encourage participation at local schools, providing methods and materials that work.
- Maintain a website which addresses the objectives and provides resources and related website links.
- Monitor current and emerging issues related to national and state science educational standards, curricula and testing policies.

The Fund will be used to continue support proven programs such as

And the survey said ... the top area of interest to AAPG members was ... outreach to students from kindergarten through high school (K-12 Earth Science Education).

AGI's earth science curriculum projects, the "Rocks in Your Head" short course, and the "Bookout Initiative," a newly established, AAPG Foundation funded program for high school geosciences teachers. Also, the

fund will be used to support new emerging opportunities in K-12 geoscience education such as consortia among AAPG, AGI and other geosciences-related societies designed to provide still broader earth science education to high school teachers.

An additional result will be outreach to students, teachers, parents and the general public to educate them about the invaluable role of geosciences in understanding major issues such as global climate change and world energy needs.

How can you help?

You may direct your tax-deductible contribution toward the AAPG Foundation "K-12 Earth Science Education Endowment Fund."

Every gift received is of vital importance to this program and all donors to the K-12 Earth Science Education Endowment Fund will receive recognition in the AAPG Explorer.

Contributions are accepted by check, credit card by phone, or online at foundation.aapg.org/donate. To receive a 5-year pledge commitment form or further details regarding the K-12 Education Endowment Fund, please contact Executive Director Rick Fritz at 918-560-2639 or manager Rebecca Griffin at 918-560-2644.





Alfredo Guzmán (left) and John Lorenz greet students wearing traditional Peruvian costumes after a cultural performance for the AAPG delegation at Universidad Mayor de San Marcos in Lima, Peru.

REGIONS&SECTIONS

Delegation Visits Colombia, Peru

By CAROL MCGOWEN, Regions and Sections Manager

Colombians elected Juan Manuel Santos as their new president on June 20, the day AAPG's presidential delegation landed in Bogotá for a whirlwind tour with both tactical and strategic importance.

From there, AAPG President John Lorenz, Regions Vice President Alfredo Guzmán and Sections and Regions Manager Carol McGowen went to Cartagena, Colombia, and then to Lima, Peru – two Latin American Region countries and three cities in five days.

AAPG Region officers Enrique Velasquez (president), of Ecopetrol; Miguel Ramirez (president-elect), retired ExxonMobil;

Victor Vega (vice president), BP; and Victor Ramirez (secretary-treasurer), Ecopetrol, accompanied the delegation throughout the ambitious schedule of appointments with 13 national and international oil companies plus four universities.

AAPG affiliates Asociación Colombiana de Geólogos y Geofísicos del Petróleo (ACGGP) and Sociedad Geologica del Peru (SGP) were hosts.

* * *

In Colombia, the AAPG delegations met with industry leaders who expressed belief that Santos, the former defense minister to the current president Alvaro Uribe, will have a priority to ensure Colombia's security against guerilla resurgence when he takes office on Aug. 7.

The rapidly growing number of companies and many global partnerships now investing and working in Colombia and Peru seem a clear indication that the industry is less concerned about past terrorism threats, and are now eager to participate in the current resurgence of exploration activity for the region's abundant natural resources.

In terms of industry activity, the timing of AAPG's visit to the region could not have been better. As recently as April, World Bank's regional chief economist Augusto de la Torre said in his economic forecast for Latin America (www.worldbank.org/co), "The region's demonstrated resilience to economic crises and investment-friendly local conditions will raise the relative appeal of many Latin American countries as destinations for foreign direct investments."

Indeed, without exception, each company visited by AAPG confirmed the reality of de la Torre's forecast. The present pro-business economic climate in Colombia and Peru is attracting both local and foreign-direct investments in energy exploration and production by companies of all sizes.

Some estimates count the number of new companies entering the market in Colombia at nearly 40. For example:

- ▶ Talisman Energy, headquartered in Canada, entered the market in Peru in 2004 from an office in Lima.
- ▶ Talisman (Colombia) Oil & Gas opened its Bogotá office one year ago.
- ▶ Houston-based Remora Energy opened an office in Bogotá in 2008 for its subsidiary, Columbus Energy's Sucursal Colombia.

"Now that security is good, companies are hungry to work on Colombia's amazing geology," said AAPG member Stephen Hermeston, Remora Energy new ventures manager.

Service companies Halliburton and Schlumberger can easily quantify the growth in industry activity in the region. Hermes Aguirre, Colombia country manager for Halliburton, said that rig activity has increased nearly 300 percent, from 20-25 rigs operating in Colombia in the past two or three years to 80 actively drilling rigs in 2010. Halliburton's 2009 capital investment in equipment of \$80 million USD is the company's largest such investment in the last 10 years.

Also, the number of workers employed by Halliburton in Colombia has nearly doubled in the past three years, increasing from 600 to 1,100 employees.

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Continued on next page

Continued from previous page

working in Colombia during this time of intense activity include Petrobras, BP and Shell. And like E&P companies worldwide, they recognize the critical shortage of skilled workers and are taking steps to develop the next generation of their workforce.

BP, for example, which has been operating in Colombia for 23 years, places an emphasis on developing the local work force – its entire management team there is comprised of native Colombians. For students and recent graduates, the company offers internship programs.

While in Bogotá, the AAPG group also met with ACGGP President Ivan Olaya and other ACGGP representatives at the association's offices. There, students from the Universidad Nacional de Colombia in Bogota, Universidad Industrial de Santander in Bucaramanga, and EAFIT University in Medellin gave presentations about the activities of their AAPG student chapters.

The newest Student chapter at Universidad Nacional de Colombia was formed earlier in 2010 through the "enthusiastic support" of AAPG's Latin American Region, according to Chapter president Ignaccio Iregin.

All three universities were straightforward in discussing their needs for software, books and ongoing support from AAPG and ACGGP. They all plan to collaborate with other universities to help start new student chapters and research groups, and to mentor new IBA teams.

* * *


Following Bogotá, the AAPG group's flight to Cartagena arrived in plenty of time before the start of the Colombia Oil & Gas Investment Conference/World Petroleum Council Regional Meeting, scheduled at the historic Teatro Adolfo Mejia.

The immediate concern was an important meeting scheduled prior to the opening ceremony with Hernan Martinez, Colombia's minister of mines and energy, and Armando Zamora, director general of ANH – both of whom shared their perspectives on the transformation of

Colombia's energy industry and prospects for the future.

Zamora was quick to credit Uribe for creating a democratic environment in Colombia to move forward the national economy. He reported the results of the previous day's bidding round in which bids by companies worldwide were made on 96 of 229 blocks offered in all of Colombia's basins both on-shore and off-shore, including Nicaragua's Los Campos Basin, for a total 2011 investment of \$1.2 billion USD.

Bidders included 12 new companies not previously working in Colombia.

In Lima, the AAPG team was warmly welcomed at SGP headquarters by SGP President Pedro Alarcon, past president Barbara Bruce and many other SGP members. John Lorenz was presented with a gold replica of an Incan warrior, and a pledge was made to maintain closer ties between AAPG and SGP. 

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Industry professionals and students are invited to submit abstracts to the AAPG 2011 Annual Convention & Exhibition. The technical program committee encourages abstracts that relate to any of the topics listed below. Planned sessions and formats (oral or poster) may be modified depending on actual submittals.

THEME 1: Molecules to Marketplace: The Business of Energy

This theme will include business energy experts from domestic and international companies who will discuss active oil and gas trends, price, demand and advice on what might happen in the future.

THEME 2: Global Deepwater Reservoirs: Giant Leaps in E&P

This theme will present state-of-the-art geoscience investigating deepwater reservoir studies and deepwater depositional environments in fields located offshore of the Gulf of Mexico and Africa.

THEME 3: Worldwide E&P: Opportunities in the New Decade

This theme will cover exploration and production onshore or offshore. It will include significant new plays and studies of geological trends from countries of the world including Americas, Brazil, Middle East and Asia.

THEME 4: Challenged Resource Frontiers

Challenged Reservoirs will cover multidisciplinary aspects related to the characterization, assessment and understanding of gas and oil resources from less-than-conventional reservoir systems in both the U.S. and international arena. We encourage contributions ranging in scale from 'pore-throat to basin'.

THEME 5: Mudstones and Shales: Unlocking the Promise

This comprehensive theme will include U.S. and international gas- and oil-productive mudstone case studies, systems geology and geochemistry, exploration, assessment and ranking techniques, reservoir characterization and evaluation, and drilling and completion technologies.

THEME 6: Siliciclastics: Advancing Research to Resource

This theme covers all aspects of siliciclastic research and reservoir characterization including, fluvial, shallow marine and deepwater settings, diagenesis and reservoir modelling.

THEME 7: Insight into Carbonates and Evaporites

This theme will include oral and poster sessions about carbonate and evaporite research (ancient and modern), carbonate reservoirs, reservoir modeling, seismic interpretation and oil and gas studies of carbonates.

THEME 8: Breakthroughs: Tectonics, Salt and Basin Analysis

This theme will hold sessions concentrating on basin analysis, petroleum systems and studies of structure and tectonics worldwide, including faulting styles and salt tectonics.

THEME 9: Integrating New Technology, Geophysics and Subsurface Data

This theme will have abstracts and sessions relating to geology integrated with geophysics and applied to exploration and production, including surface and subsurface GIS mapping technology.

THEME 10: Energy and Environmental Horizons

This theme will have energy and environmental sessions important to today's natural resource and environmental geologists. Papers coordinated by the AAPG's Energy Minerals Division (EMD) will address alternative energy resources. The Division of Environmental Geologists (DEG) will coordinate papers on environmental geology.

THEME 11: The Next Geo-Generation: Who, What and Where

This theme will explore the trends and dynamics of young professionals (1-10 years) in the energy industry through an exciting speaker program and poster sessions. Covered topics will include managing career development, attracting and retaining geoscience staff and forecasting new career pathways.



www.AAPG.org/Houston2011

Thank You

AAPG stands ready to disseminate the latest science to aid explorationists working in Latin America. Whether coordinating regional AAPG lecturers on cutting edge topics, providing training for new hires, access to AAPG digital data archives or book donations to universities, or partnering with our affiliate societies to offer conferences, AAPG is eager to build upon the ideas and relationships generated from this regional visit.

It is with sincere appreciation that AAPG thanks the Latin American Region officers and their companies for their time and dedication to help organize this important trip, as well as our host societies, ACGGP and SGP.

In Colombia, AAPG is grateful to Minister of Mines and Energy Hernan Martinez; director general of ANH, Armando Zamora; and the president of national oil company, Ecopetrol, Javier Gutierrez, for the generosity of their time and hospitality.

Thanks also to Talisman, Remora Energy, Petrobras, Shell, Chevron, BP Colombia, Pacific Rubiales Halliburton and Schlumberger for welcoming AAPG into their offices. In Peru, sincere thanks go to Plupetrol, Savia Peru, Ecopetrol Peru and Talisman.

– CAROL MCGOWEN

Researcher Follows His Interests

By BARRY FRIEDMAN, EXPLORER Correspondent

By his own admission, Martin Jackson, this year's winner of AAPG's Robert R. Berg Award for Outstanding Research, would have been a lousy doctor.

It almost happened. "My early inclination," Jackson says, "was to medicine."

So what happened? Did his focus change to salt tectonics after enrolling in some geology course on a lark? Or was it a family field trip that revealed the wonders and mysteries of the earth?

Neither. "I wasn't clever enough," he said of his goal of medicine, "so I settled for biology instead, aiming for marine biology, partly because a life by or on the sea was attractive after growing up in a landlocked country."

Indeed, Jackson, who ranks among the geosciences award-winning legends at AAPG, was born in Rhodesia (now Zimbabwe).

But it wasn't until he was completely done with medicine aspirations (or vice versa) did he take the obligatory geology course that changed his focus.

"At university," Jackson says, "I added geology as a filler course – then discovered I had an aptitude for it."

After graduation, he took a job as a mineral prospector, which helped him financially, but not philosophically – the occupation offered little mental stimulus.

Nor did he relish living in mining communities or being away from his young family, so he shifted gears and started an academic career.



Photo courtesy of Christopher Harrison

For some researchers, work is a great adventure: Martin Jackson on northern Ellesmere Island in Arctic Canada, at latitude 80N.

And as much as medicine didn't fit, research did.

In fact, it all did – even the early years prospecting and living rough.

"As a young field geologist sampling countless rocks and soils for lab analysis, I could never have envisaged the course of my future career," he said.

"The combination of freedom and stimulation in research has been unbeatable," he continued, "including exploration (physical adventure and the mental roving), piecing a story together, the satisfaction of using a drawing to

think, the craft of writing and finally the encouragement to tell a geological story to others."

It is those last two that Jackson, now senior research scientist at the Bureau of Economic Geology at the University of Texas at Austin, wants to emphasize.

"The hallmarks of an academic career are teaching or publishing, and fortunately I've never regarded writing as a dreary slog," he said. "Some papers are difficult to write, and some almost write themselves, but they've all been immensely satisfying to complete."

"Unless academic research is published, it's essentially useless and little more than self-gratification," he said. "Only after publication can it be evaluated and tested and put to use if it's any good."

Born to Be Wild(er)

And his work has been good. Actually, not just good. They've been award-winning.

Jackson, who received the Berg Research award at the recent AAPG Annual Convention and Exhibition in New Orleans, also has on his AAPG resumé:

- ▶ The J.C. "Cam" Sproule Memorial Award, in 1985.
- ▶ The George C. Matson Award, in 1990.
- ▶ The Robert H. Dott Sr. Memorial Award, in 1998.
- ▶ The Jules Braunstein Award, in 2009.

According to AAPG records, no one has won more AAPG technical awards, nor has any one won in as many technical categories.

"AAPG has been shockingly generous in its recognition," he said, "especially as I'm by no means a petroleum geologist."

His first award from AAPG – the Sproule Award, as co-author for Department of Energy-funded research in East Texas with Steve Seni – has a special meaning all its own for Jackson.

"To receive a prestigious award from an enormous international society like AAPG was entirely unexpected and made me realize there's hidden potential in oneself," Jackson said. "Winning an award boosts a

Continued on next page

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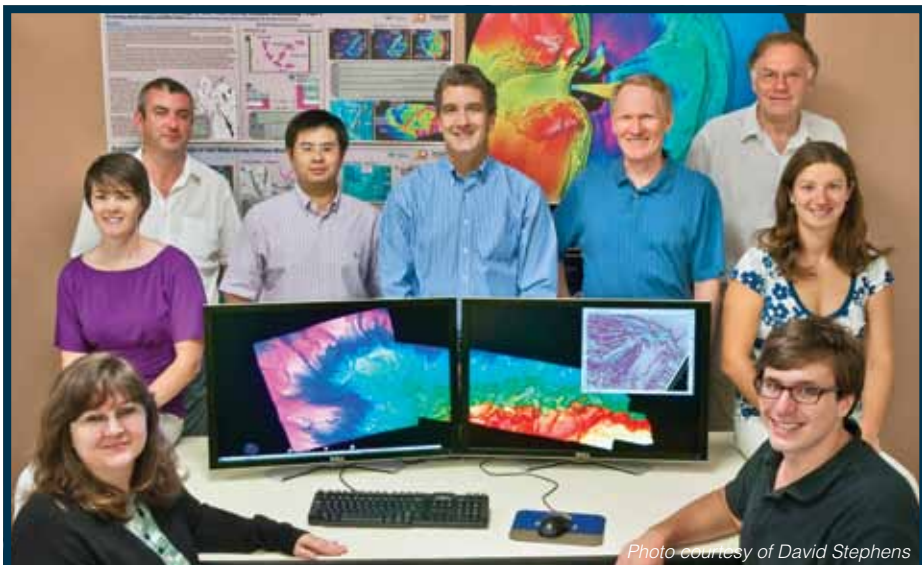
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The AGL research group (from left to right): Nancy Cottington, Angela McDonnell, Tim Dooley, Gang Luo, Mike Hudec, Martin Jackson, Ian Norton, Maria Nikolinakou and Mike Braunscheidel. Photo courtesy of David Stephens

Continued from previous page

young career in unpredictable ways."

And he has an admission to make about that Sproule.

"I squeaked in under the upper age limit of 35," he said, "and was still feeling my way around techniques of subsurface geology."

He quickly points out, though, that his drive and pursuit of scientific excellence isn't fueled by the potential for awards, but the potential for adventure.

"I've always been attracted to unconventional or sparsely populated branches of geology," he said. "My honors thesis at the University College of Rhodesia was on lunar geology, which began when NASA mixed up their shipments and mistakenly sent us a large box of Lunar Orbiter images."

For his Ph.D., he was "burning keen" to work in the Forbidden Area of the Namib Desert.

Why?

"Because no one else was."

"I concentrated on metamorphism and structural geology because they were the most difficult and opaque subjects I'd come across," he added. "Later, while teaching at the University of Natal, I tried to use modern structural geology on Pleistocene cliff exposures while my structural colleagues concentrated on more-manly rocks like gneisses."

Bringing Home the Groceries

Going beyond AAPG, Jackson is perhaps best known for establishing the Bureau of Applied Geodynamics Laboratory at the UT, where he's been since 1980.

The lab, he says, was inspired by two events.

The first came from his work with Chris Talbot at the Hans Ramberg Laboratory, where he learned how to model and how to critically evaluate the results.

"I realized that modeling was a perfect complement to the other main tools of the trade – field geology, subsurface geology, and theory – so I was keen to broaden my career with modeling, though how to do that was unclear."

The second impetus, he said, was financial.

"The U.S. Department of Energy funded my colleagues and me to study the tectonic stability of salt domes to see if they were suitable for storing high-level nuclear waste," he recalled. "Congress had abruptly stopped this funding in favor of Yucca Mountain as a national waste repository. Things looked bleak for further research on salt domes; it was 1988."

"So ... our director, Bill Fisher, said, 'Jackson, it's time you brought in the

groceries,' as the Bureau of Economic Geology scrambled for new sources of external funding."

Jackson decided to fund the venture with a large industrial consortium.

"This was the first time I'd interacted with the oil industry, but with help from Marcus Milling (AAPG Honorary member, now deceased), an associate director at AGL, we persuaded 13 companies to support the venture in our first year, a gesture of faith they made possibly because of the novelty."

At the time, there were no other tectonic modeling laboratories housed at U.S. universities.

Since that initial shopping spree, AGL has attracted \$13.7 million and now has over 30 member companies.

"Our debt to the financial support of the oil industry is deep."

Global Interests

So, too, is Jackson's fascination with new frontiers.

For instance, after arriving in Texas, he switched to softer, deeper and younger rocks than the Precambrian terranes he'd worked in for the previous 10 years.

"I immediately became interested in salt domes," he said, "although this was then one of the most moribund topics in structural geology."

After learning the ropes in the East Texas Salt Basin, he then "wandered," first to the Gulf of Mexico and then to all over the world, with a special interest in the Paradox Basin, Iran, the Red Sea, Arctic Canada and the South Atlantic margins.

"I've also been attracted to some of the more bizarre manifestations of diapirism," he said, "such as that on Triton (a satellite of Neptune) and Mars, and the puzzling relics of salt tectonics in complex Precambrian orogens."

For Jackson, his career has been part art, part technical, part business. He talks of his enjoyment for salt tectonics and how it "provides complexity of structure, the mystery of what makes them move, the wonder that mountains of salt lie beneath the ground, a vast array of beautiful organic shapes and a dominant importance in many sedimentary basins that inspires companies to spend good money trying to understand them for exploration and seismic processing."

"I've always enjoyed history," Jackson said, "and geology is the history of the earth. But history is more than a series of events."

"The real interest for me is cause and effect – how and why things happened."

And so his work progresses, his awards continue and his resumé grows: Martin Jackson – research scientist, lecturer, wanderer, author ... and grocery shopper.

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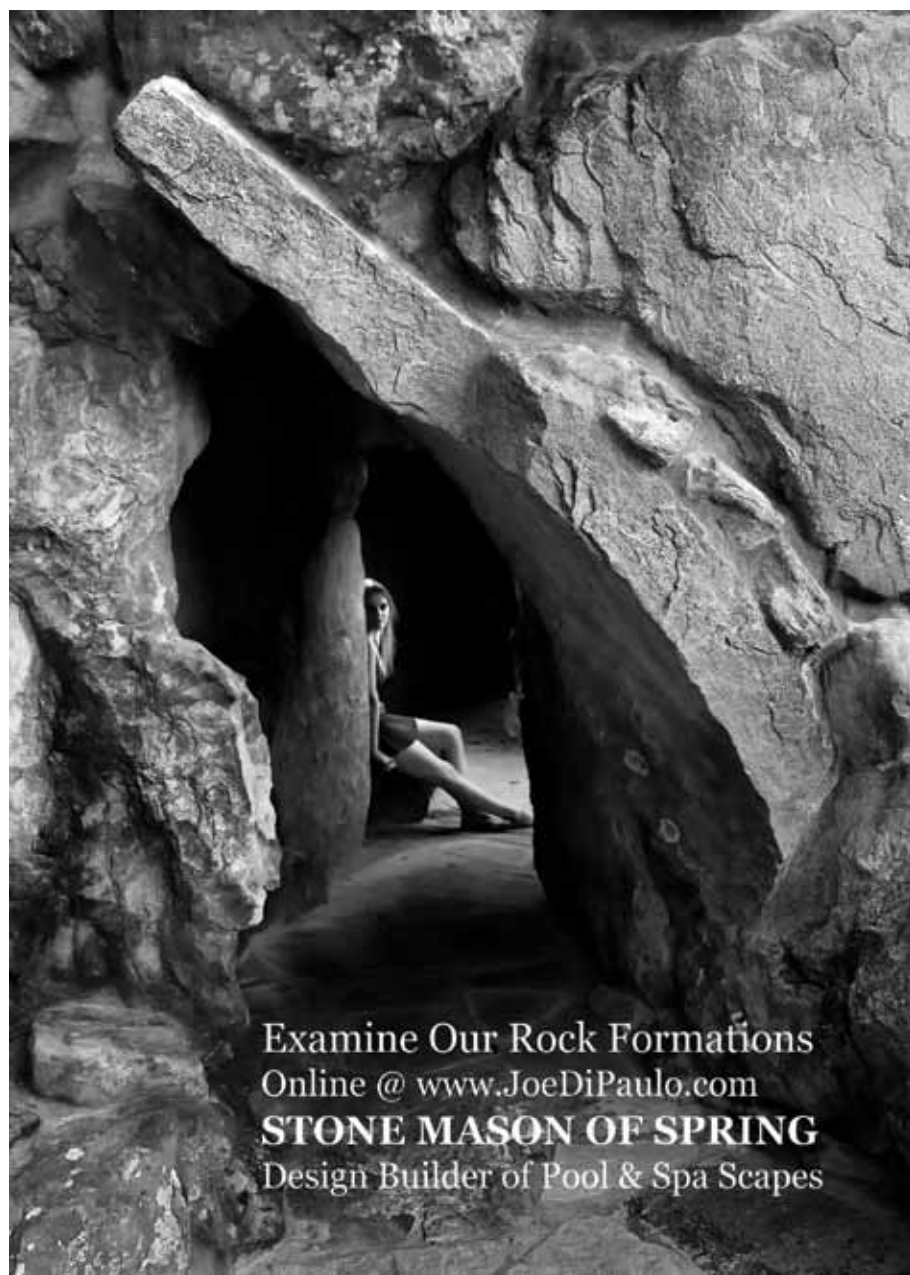
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Any information bearing on the qualifications of these candidates should be sent promptly to the Executive Committee, P.O. Box 979, Tulsa, Okla. 74101.

Information included here comes from the AAPG membership department.

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

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David A. Bird, NFR Energy, Englewood (D. Scolman, J. Lister, M. Grummon)

SPOTLIGHT ON ...

Shared Passions: Fútbol, Geology

By **BARRY FRIEDMAN**, EXPLORER Correspondent

That Argentine AAPG member René Manceda watched the recent World Cup from his home in Madrid (he was rooting for Argentina) with a passion unknown to most Americans is nothing new – the rest of the world watches with a similar energy inexplicable to most in the United States.

But what makes Manceda's story different (at least for those in AAPG) was that he watched at perhaps a profoundly deeper level – both intellectually and emotionally.

Manceda actually has played the game – as a professional.

And he played it for Argentina, the South American powerhouse.

In fact, his good friend, his old teammate, Carlos Bilardo, is Argentina's current general manager.

Manceda, who is now a geology adviser/leader of the structural community for RepsolYPF, played "fútbol" professionally for six years, for teams like Estudiantes de la Plata and Libertadores de America Cup Champion, both championship squads.

It has stayed with him.

But like most who had to choose between avocation and occupation, Manceda made some tough decisions along the way.

"I was a university student in chemistry during the early stages of my professional soccer life," he recalled, but it was impossible for him to pursue due to the number of games and trips his soccer club were playing and taking.

His solution? (Educators, cover your eyes.)

"I decided to abandon the university – temporarily – and keep on when my soccer career finished," he said.

Back to School

Fortunately for geology, after his legs aged and his body would no longer accept the punishment of running up and down the pitch, he did indeed return to school.

"I discovered geology because some friends were involved in earth sciences and I was fascinated," he said.

He re-enrolled in La Plata University at Ciencias Naturales y Museo de La Plata, where his new fascination quickly became his new passion and pursuit.

To this day, he sees a similarity between the two – mainly, both soccer and geology, he says, hold for him an "impressive experience."

He cites the joy and challenge of playing in front of thousands of fans

and the satisfaction, for instance, of geological mapping of the Andes for the past 10 years, as well as his continuing work for Respol in other exploration projects.

And those projects have taken him all over the world: Argentina, Venezuela, the Caribbean, the United States, Libya, Iran, Saudi Arabia, Algeria, Kazakhstan, East Africa, India, China, Indonesia, Malaysia, Philippines, Cambodia, Vietnam and Australia.

In fact, when contacted by the EXPLORER for this article he was on the move again, this time back to Argentina, but until recently had been in Madrid.

"In Argentina I will be part of a new ventures international team, created recently, advising in structural issues," he said. Specifically he will be a member of a control quality team for exploration projects and preparing a structural geology internal course in the Andes.

Still Kicking

But once a fútbol player, always a fútbol player – and Manceda is not shy about his take on what went right what went wrong for those countries not named Spain that were involved in the recently concluded FIFA World Cup.

"Both Spain and Argentina have plenty of excellent quality of players, but the difference was the teamwork," he said of the eventual champs.

"Spain chose a brilliant technique during the last six-seven years with minor changes in the players and coach," he said. "On the other hand, the Argentinean players are stars on their European team and a strong international experience, but the national team never chose a strategy and change around hundreds of players."

The results, he believes, were poor qualifications for the World Cup, even though the team was, as he says, "impressive" in its loss to a "tactically organized Germany."

Still, like most Argentines, he was not happy with the quarterfinal loss.

"In other words," he said of both his good friend Bilardo and famed Argentine player/now national team coach, Diego Maradona, "the coaching was a disaster."

Another observation: He said the most disappointing team in the tournament, France. "It was another example of this terrible management" system, he said – something that holds a lesson for those in the geosciences.

See **Fútbol**, next page

Continued from previous page

Malaysia

Bach, Phuong-Nha Xuan, Talisman Energy, Kuala Lumpur (I.D. Collins, W.O. Martins Jr., W.S. Sheely)

Nigeria

Abiru, Adeyinka Omololu, Ankor Pointe Integrated, Lagos (O.R. Ojo, I.W. Yussuph, B.A. Koledoye); Adebiji, Adeniji

Adesola, Nigerian National Petroleum Corp., Lagos (D.S. Sejebor, M.D. Bako, E.O. Olopade); Nwafor, Chukwuemeka Simon, Ankor Pointe Integrated, Lagos (S. Ebie, O.R. Ojo, I.W. Yussuph)

Republic of Singapore

Russell, Carey Laurence, Lundin South East Asia, Singapore (A.N. Hough, J.J. Lobao, M.A. Rosen)



2010 FALL SYMPOSIUM: September 15-17, 2010

Leveraging Conventional and Unconventional Play Concepts in the Permian Basin – The Value of Stratigraphy and Technology

Please plan to attend the 22nd West Texas Geological Society Fall Symposium. The two and one-half days of technical sessions will feature oral and poster sessions presented by outstanding authors showcasing current research, field studies and other aspects of the Permian Basin and analogous areas. The symposium provides attendees with a chance to network with their peers in a technical setting that also provides opportunities for social interaction.

Core Workshop: Wolfberry Reservoirs of the Permian Basin

Discovery Forum: Top explorers tell the stories behind their Permian Basin field discoveries

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- Wolfcamp and Leonard Reservoirs
- Chemical & Mechanical Stratigraphy of Fine-Grained Sequences
- Permian Basin Petroleum Systems
- Modern Techniques & Old School Methods
- Paleontology - The Key to Finding New Oil in Mature Areas
- Geologic and Geophysical Studies for Enhanced Recovery or Sequestration
- Onshore US play concepts and field analogies

The Fall Symposium will be held at the Midland Center in downtown Midland, Texas, with technical sessions and poster sessions taking place on **September 15 & 16, 2010** and the **core workshop taking place on September 17, 2010**. The symposium will begin at 8:30 am on Wednesday, September 15 with registration beginning at 7:30 a.m. For more information, contact Executive Director Paula Mitchell at the WTGS office at (432) 683-1573, [wtgs@wtgs.org] or General Chairman Ricky Cox [rcox@conchoresources.com] (432) 685-4387. For information on technical sessions, contact Dave Nelson at [dave.nelson@pxd.com] (972) 969-3810 or Beverly DeJarnett at [bev.dejarnett@beg.utexas.edu] (281) 381-6522. An Ethics Luncheon Presentation will take place apart from the symposium and will be held on Thursday at the Midland Petroleum Club. This presentation meets the Texas Registration requirement for Professional Development Hours for Geologists and Engineers.

To register, please send the completed form below with payment to: WTGS P.O. Box 1595, Midland, Texas 79702. Credit card payment may be faxed to (432) 686-7827. **Pre-registration and cancellation deadline is August 31, 2010.** A block of rooms has been reserved at the Midland Hilton. The hotel phone number is (432) 683-6131. *Remember to ask for the special WTGS Symposium rate.*

____ Symposium Pre-Registration \$150.00 ____ Symposium on Site Registration \$175.00 ____ Ethics Luncheon Presentation \$ 25.00

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Listen to technical presentations:

- 10:30am: Rick Fritz, AAPG: "The Arbuckle Group: Understanding a Great American Carbonate Bank Reservoir"
- 1:30pm: Jim Puckette, Oklahoma State University: "Sequence Boundaries and Oil and Gas Accumulations"

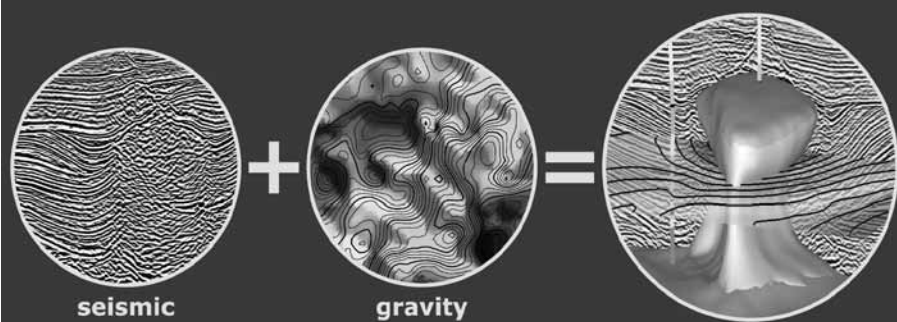
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Energy Suggestions

The ill-advised moratorium on offshore deepwater drilling is yet another punitive action taken by our government against the oil and gas industry. It is beyond comprehension why our administration and Congress are hell bent on punishing the one industry that provided the energy that brought the United States to its current stature ... that is the envy of the world.

Consider: We spend \$1 billion dollars each day buying some 14 million barrels of oil from foreign sources. We spend an ungodly dollar amount supporting our troops, aircraft carriers, submarines, etc., to ensure delivery of this oil to our shores. This dollar drain threatens our economic stability.

We have some 160 million cars and 110 million trucks, buses, etc. We are thus afforded unparalleled freedom to move about, as well as being beneficiaries of

efficient movement of goods and services to all concerns of our nation.

We support the above by use of fossil fuels. To date there is no alternative available to replace fossil fuels. We have within our borders and offshore an abundant amount of yet to be discovered oil and gas. These reserves are available to us if our government will open heretofore banned areas for drilling. This action would provide the quickest and most efficient way to energy independence.

The quickest way to mitigate the devastating huge outflow of dollars is open our own areas for drilling and suspend the subsidization of alternatives for the time being. These two actions alone would provide substantial improvement in our trade deficits and debt reduction.

Richard Baile
Houston

WE CAN'T STOP THE

tears.

Fútbol

from previous page

"I think some should make an analysis of these examples in term of team management," he said.

As for the United States effort in the World Cup, he is mostly sanguine.

"If USA soccer continues to improve" it could gain increased world-wide legitimacy," he said. "It might even survive in a country dominated by American football, the NBA (National Basketball Association) and hockey. Obviously, though, Europe looks like the best soccer level – the amount of money that is around the several leagues in Europe is considerable."

As to his old and new life, he sees a very real connection between being in the field and once being on it.

"There probably exists many connections between soccer and geology," adding that kicking balls and kicking stones are more similar than one might believe.

"But to me the most significant is that it is the same feeling I get, whether I am in the middle of game in a stadium with 50,000 fans or testing a structural model in real time in a dozens of million dollar wells."

Well, maybe not entirely the same.

"While I was a professional soccer player in Argentina, I never played in a World Cup, unfortunately."

Fútbol's loss. Geology's gain.



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IN MEMORY

- Mauro Dante Beltrandi, 88
London, England, Dec. 1, 2009
- Roy W. Foster, 83
Socorro, N.M., May 26, 2010
- Robert Louis King, 79
Montgomery, Texas, May 8, 2010
- Norman West Schultz, 94
Gig Harbor, Wash., May 19, 2010
- Donald A. Seeburger, 55
Danville, Calif., May 18, 2010
- John Philip Shannon Jr., 73
Houston, Dec. 17, 2009
- Lawrence Usner, 85
Lafayette, La., May 22, 2010

(Editor's note: "In Memory" listings are based on information received from the AAPG membership department.)

EMD
from page 45

Current industry research focuses on development and testing of techniques for extracting oil and minimizing environmental impacts of techniques in three main categories:

► **Mining and retorting.**

Mining and retorting have produced shale oil for more than 100 years. New developments relate to increasing the efficiency and decreasing the impact of retort operation, such as in development of advanced fluidized bed reactors.

Research continues on the impacts of past production, and on utilization of spent oil shale and oil shale ash from burning of oil shale in power plants. Obvious applications involve use in cement and brick manufacture, but more advanced techniques involve extraction of various constituents from the material.

The Fushun Mining Company (China) has set as an objective of no net waste products from oil shale production.

► **In situ heating and extraction.**

In situ extraction is the focus of intensive research to develop a method to heat and pyrolyze kerogen-rich rocks underground and efficiently extract the oil and gas from the formation. Shell has led in this area, but ExxonMobil, Total/AMSO, Chevron and others are investigating different processes.

In situ heating takes longer (on the scale of years), but pyrolysis occurs at lower temperatures, and additional reaction at depth leads to a lighter oil with a larger gas fraction. Less secondary processing to meet refinery requirements is needed.

Research on in situ processes and on processing the resulting material continues at companies developing these methods, but results are generally proprietary. Symposium presentations have described general results in containment, heating, extraction, refining and reclamation.

► **In-capsule extraction.**

In-capsule extraction is being pursued by Red Leaf Resources of Cottonwood Heights, Utah. It involves mining of oil shale, encapsulation in a surface cell akin to a landfill, heating and extraction of the products, and final sealing of the exhausted retort.

A recent trial has been completed and the results are favorable. The process is

described in more detail at Red Leaf's website at redleafinc.com.

* * *

The premier opportunity to catch up with global developments in oil shale will be the 30th Oil Shale Symposium, held at the Colorado School of Mines Oct. 18-20 (with a field trip to western Colorado and eastern Utah on Oct. 21-22).

Register for the symposium at outreach.mines.edu/cont_ed/oilshale/?CMSPAGE=Outreach/cont_ed/oilshale.

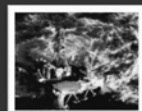
Past proceedings are posted at ceri-mines.org/oilshaleresearch.htm.

(Boak is director of the Center for Oil Shale Technology and Research at the Colorado School of Mines and co-chair of the Oil Shale Symposia).

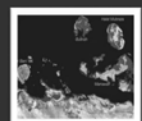
www.TargetExploration.com



The 3rd Iraqi Petroleum Conference (IPC 10)
IRAQI OIL & GAS: Post-2003 Exploration & Production
Wednesday 22 & Thursday 23 September 2010. The Imperial College, London.



The 8th Middle East & North Africa Oil & Gas Conference (MENA 10)
Offshore MENA: The Last Frontier
Monday 20 & Tuesday 21 September 2010. The Imperial College, London.



Post-MENA 2010 Onshore-Offshore Fieldtrip
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Attention
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Explorers

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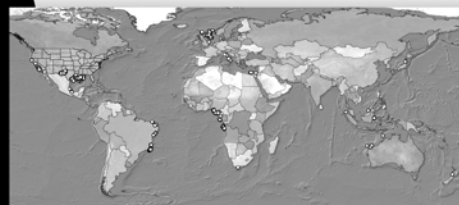
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Explorationist : Many of our customers see the potential of 3DEM, but lack internal expertise to extract value from the data. We seek an explorationist, preferably with significant oil company experience, to develop and implement interpretation and de-risking workflows for major customers. The successful candidate should hold a geology degree, and have 5-10 years oil industry experience, though other geoscience profiles will be considered. This high profile position offers potential for rapid advancement. Strong organizational and communication skills will be required.

Geophysicist : We seek an experienced geophysicist to perform data processing, modeling and inversion of EM data. Experience with integration of EM and seismic data is preferred.

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The Boone Pickens School of Geology at Oklahoma State University (OSU) seeks applications for two endowed chairs: the Chesapeake Energy Corporation Chair of Petroleum Geoscience and the Devon Energy Corporation Chair of Basin Research. We are particularly interested in candidates with interests in one or more of the following: unconventional energy resources, petrophysics, reservoir characterization/modeling, tectonics of sedimentary basins, depositional and diagenetic systems, and basinal fluids. These chairs will be filled at the level of Professor, will carry tenure in the School of Geology, and will be effective August 2011. Applicants must have a Ph.D. degree in geology or related field and have an outstanding record of research. The applicant must be committed to excellence in teaching both undergraduate and graduate students, will be expected to supervise M.S. and Ph.D. level graduate students and develop courses in her or his specialty.

The successful candidates will join a faculty of eleven geoscientists and will take leadership roles in a department that has close ties to the petroleum industry. The School's teaching and research facilities include state of the art geophysical field and laboratory equipment and software, the Devon Visualization Laboratory, and a wide range of petrographic and geochemical instrumentation. The School also has a recently renovated field camp facility near Canon City, Colorado.

Candidates should submit a letter of application, including a discussion of research interests and approach to teaching, along with a curriculum vitae and contact information for three references to: Endowed Chair Search, Boone Pickens School of Geology, 105 Noble Research Center, Oklahoma State University, Stillwater, Oklahoma 74078-3031. Screening of candidates will begin on November 8, 2010 and continue until the position is filled. More information about the Boone Pickens School of Geology can be found on the web <http://geology.okstate.edu> along with additional information about these opportunities. Inquiries may be directed to Dr. Todd Halihan (todd.halihan@okstate.edu) or Dr. Jay Gregg (jay.gregg@okstate.edu). Committed to health and safety Oklahoma State University maintains a tobacco free work environment. Oklahoma State University is an Affirmative Action/Equal Opportunity/E-Verify employer committed to diversity.

Bureau of Economic Geology John A. & Katherine G. Jackson School of Geosciences The University of Texas at Austin

The Gulf Coast Carbon Center (<http://www.beg.utexas.edu/gccc/>), an international leader in CO2 sequestration research, is looking for junior and senior geologists or engineers with expertise in reservoir characterization or reservoir fluid modeling. Previous experience in CO2 sequestration is desirable but is not required.

- Reservoir Geologist/Petrophysicist posting # 100224030708
- Reservoir Engineer/Fluid Flow Modelers posting # 100224040708
- Research Geologist/Hydrological Modeling Posting # 100224020708

Please refer to the following website for a full description and requirements of each position, and to apply. <http://utdirect.utexas.edu/pnjobs/index.WBX>. Use the corresponding posting number for the position for which you are interested.

The University of Texas at Austin is an equal employment opportunity/affirmative action employer. All positions are security sensitive, and conviction verification is conducted on applicants selected.

Field Station Executive Director, Geological Sciences, Indiana University, Bloomington

The Department of Geological Sciences at Indiana University, Bloomington, invites applications for a senior administrative appointment to advance the initiatives for developing programs and infrastructure envisaged in the strategic plan for the IU Geologic Field Station in Montana.

We seek an individual of renowned repute in industry and/or academia who can implement a business plan for the Field Station that will support and sustain significant curriculum expansion and

infrastructure enhancement. Critical qualities for this position include the ability to reinforce existing links with industry and alumni and to co-ordinate all activities associated with the Field Station.

Applicants should hold a degree in geosciences, possess extensive managerial skills and industrial experience, and a proven record of teaching geology in the field. Familiarity with the IU Geologic Field Station program and its setting is strongly preferred. The responsibilities and terms of the position, initially funded as a half-time appointment, are negotiable and will be based on qualifications. Residency at the Field Station is required during the summer and in Bloomington during part of the academic year.

Enquiries should be addressed to Simon Brassell, Professor and Chair, Department of Geological Sciences, Indiana University, Bloomington, IN 47405-1403, geochair@indiana.edu. Applications must be submitted on-line at <https://jobs.iu.edu/> (#2015).

Indiana University is an equal opportunity/affirmative action employer, and encourages applications from women and minority candidates.

Petroleum Exploration Geologist Newfield Exploration Tulsa, OK

Seeking Geologist, responsible for conducting detailed prospect analysis and play fairway assessments within the Mid-Continent Region plus the generation and presentation of prospect ideas and leads to management. This position would be located in Tulsa, OK.

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Minimum qualifications, ten years of experience, knowledge of Mid-Continent upstream oil and gas, experience with conventional and un-conventional plays, experience doing play-fairway analysis assessments. Send resume to kiefler@newfield.com.

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DIRECTOR'S CORNER

Change? Yes, We Can (and We Are)

By RICK FRITZ, AAPG Executive Director



One of the primary goals of AAPG this year will be to review our strategic plan and determine AAPG's evolution into the next 35 plus years.

As the world recovers from World Cup fever, I am amazed at the impact of soccer in the United States. A lot of people in this country who never showed any interest in "football" were glued to their TVs as the tournament unfolded.

For example, one Saturday during the middle of the tournament I went to get new tires on my van. While they were working on my car I sat in the waiting room and watched one of the matches. The mechanics kept coming out to watch the game on TV and argue its coarser points with me (none of us knew any of the finer points).

Clearly, the interest in soccer is certainly changing in the United States.

* * *

Change is an inevitable part of life and it is evolution that improves. One of the primary goals of AAPG this year will be to review our strategic plan and determine AAPG's evolution into the next 35 plus years.

To this end, AAPG President Dave Rensink has charged the AAPG Advisory Council to review AAPG's Strategic Plan (www.aapg.org/business/StrategicPlan/index.cfm). A key part of the review will be to consider the assumptions that were made when the plan was first developed over seven years ago.

Changes to be considered include new technologies that have allowed us to make unconventional reservoirs conventional, more young professionals in the

marketplace due to that technology, and, of course, the impact that the Gulf of Mexico catastrophe of April 20, 2010, will have on offshore exploration.

There are six goal areas in the AAPG Strategic Plan. They are:

- ▶ Advance the science.
- ▶ Continuous professional development.
- ▶ Public awareness.
- ▶ Membership and membership services.
- ▶ Financial strength.
- ▶ Global presence.

As President Rensink said in his first column (July EXPLORER), AAPG's key to success and growth is its focus on science. As long as we provide the best science to our members and the general public we remain a strong entity.

Public awareness or outreach is also a key goal area this year. This includes providing information to the general public on geosciences and our industry. Already, in response to questions about the Gulf spill, we have educated more people on offshore drilling than in the past 10 years.

AAPG also is committed to instructing both teachers and students about our profession. This is a critical part of planning for the future.

* * *

All of the above must contain a commitment to global presence.

Globalization is *both* non-U.S. and U.S. In other words, it is critical to consider a strategy to serve all of our members when we consider global development.

One key to our globalization is decentralization in the form of regional offices.

We essentially have three types of regional offices:

- ▶ Type I offices are designed to have a minimum of two to three staff/consultants to provide services and products, and to be financially positive after three years. The European Region and Middle East offices are Type I offices.
- ▶ Type II offices have one director/manager and provide services and some

products. Type II offices are not necessarily expected to provide a significant return on investment, and are focused on service. Examples are the GEO-DC office in Washington, D.C., and the new Asia-Pacific Office in Singapore.

▶ Type III offices are designed to provide limited local support – mostly secretarial. At this time we do not have any Type III offices, but a few have been proposed.

At the request of President Rensink we currently are developing a long-range plan for opening future offices.

* * *

Of course, sometimes change is difficult. Football teams are still adjusting to the new Jabulani ball that was used in the World Cup – but this technological advancement certainly caused a lot of excitement and discussion during the tournament.

The long-term success of a not-for-profit professional association ultimately is measured by the benefits it provides to its members and society.

Evolution is usually a good thing, and it is important for us to adapt quickly and understand the needs of our membership for the future.

This will be a key year for AAPG.

DIVISIONS' REPORT

Oil Shales Making Cautious Progress

By JEREMY BOAK, EMD Oil Shale Committee Chair



The United States, with over half the estimated world resources of oil shale, remains a central focus.



Despite discouraging economic conditions over the last two years, development of the world's vast resources of oil shale continues to make progress.

Oil shale is reported from nearly 40 countries, with the largest deposits being located in the United States, Russia and China. Middle Eastern and North African resources also are large in aggregate.

Active commercial shale oil production occurs in Estonia, Brazil and China, with total global production of shale oil about 20,000 barrels per day. Informal current and future production numbers (figure 1) indicate that shale oil is unlikely to be a significant part of global production for a decade or more.

China has set aggressive goals for production over the next two decades, and the figures for the United States could be conservative, depending on the political environment.

* * *

The United States, Jordan, Israel and Morocco are nonproducing areas likely to see future shale oil production.

The United States, with over half the estimated world resources of oil shale, remains a central focus. The current political environment encourages caution, and companies are still conducting research, development and demonstration (RD&D).

The Bureau of Land Management, for example, has granted six RD&D leases

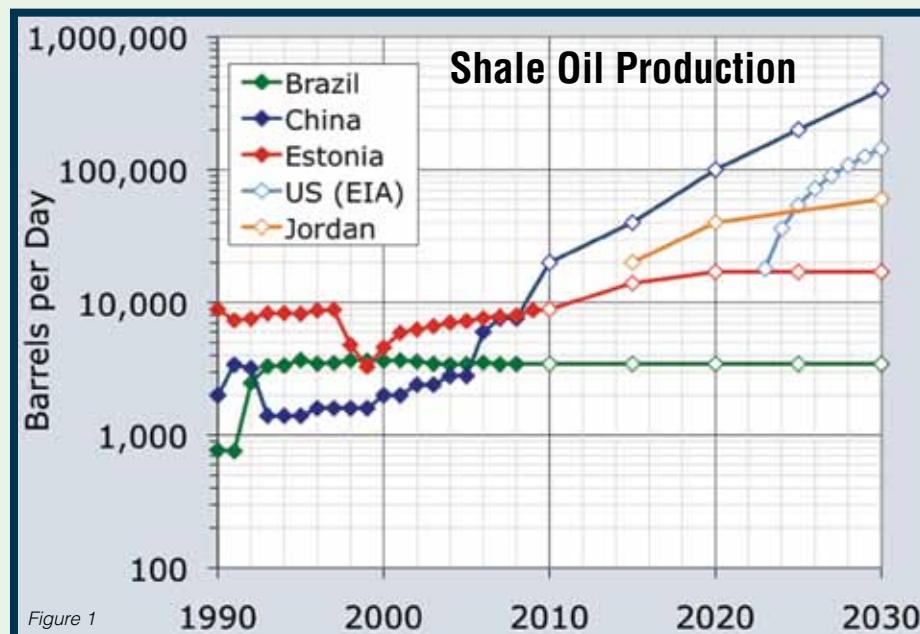


Figure 1

and is reviewing three new applications. Other companies are working on state or private land in Utah and Wyoming.

Water use, widely touted as the Achilles heel of oil shale, is likely to be far less than that for biofuels, but western water rights still can be expected to be a thorny future issue. CO₂ emissions perhaps 25-40 percent higher for some (not all) approaches than for conventional oil production also may drive technology development.

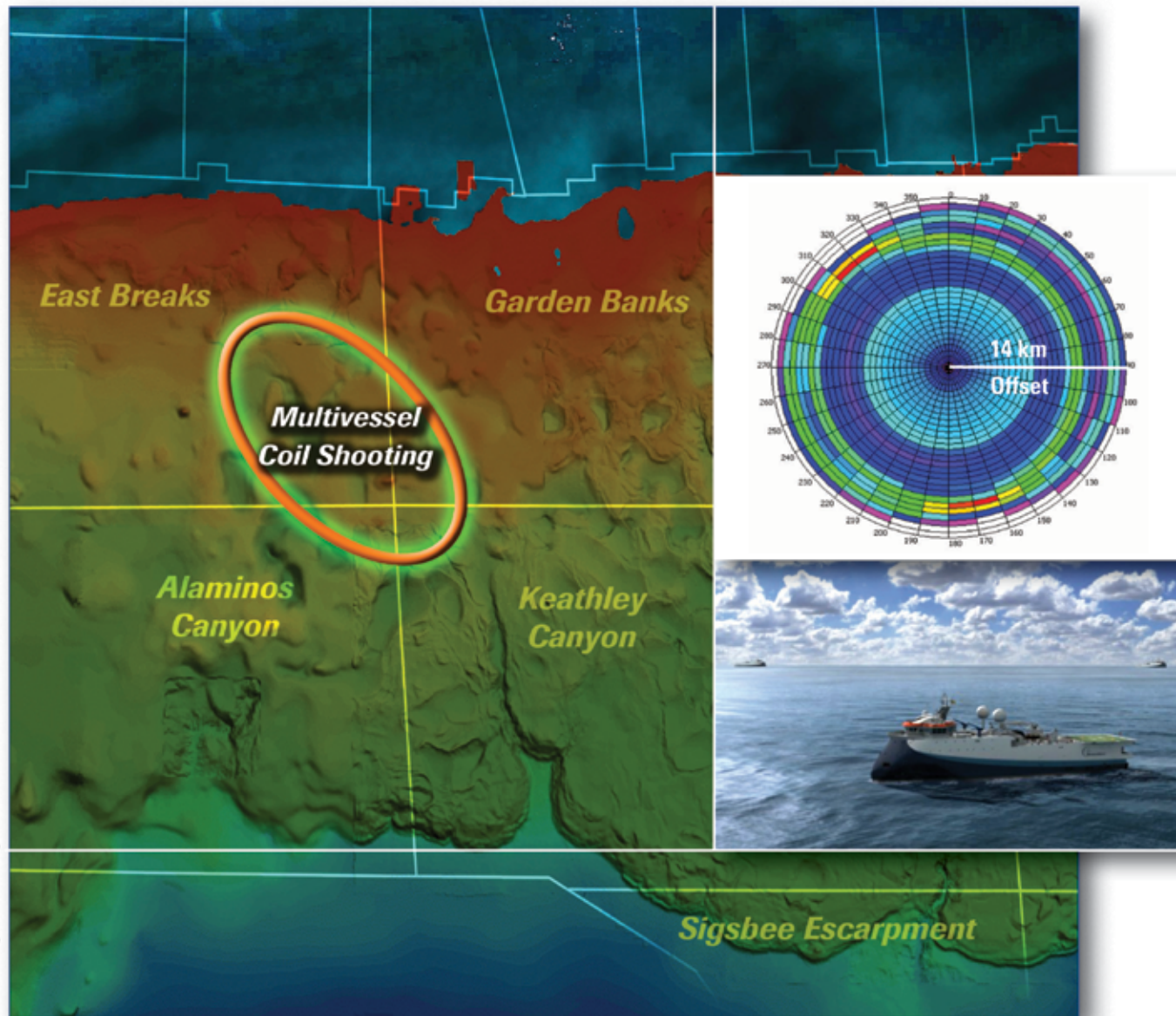
Other countries with little or no petroleum reserve may lead the United States in development – Jordan has multiple agreements with companies interested in oil shale production, and Morocco has awarded concessions or signed Memoranda of Agreement with Petrobras, Enfit and San Leon Energy to evaluate oil shale resources.

Estonian companies also are actively encouraging development in many locations.

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