

AAPG AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, AN INTERNATIONAL ORGANIZATION

EXPLORER

NOVEMBER 2004

Untapped Potential

**Will Arctic basins sizzle,
or be a big chill?**

See page 6



Vol. 25, No. 11
November 2004

AAPG
EXPLORER

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On the cover: Geologists get a view of deepwater Cretaceous sandstones on the west coast of the Nuussuaq Peninsula in West Greenland on a field trip during a study session held at nearby Ilulissat. Participants at the workshop discussed methodology for a resource assessment of the Circum-Arctic as well as hearing about the hydrocarbon possibilities of the region – especially Greenland. The report is on page 6. Cover and page 8 photos by T. Ahlbrandt.

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The first steps have been taken in an intersociety effort to create a **Certification of Petroleum Reserves Evaluators** program.

Northern exposures: The demand for new resources plus the growth of new technologies have led to an ambitious multi-country and industry effort to determine the energy potential of the **Arctic**.

So, you say you're quite the gambler? When it comes to **auctions and bidding** on leases for drilling, there's a reason why so many "winners" read 'em and weep.

The reel thing: AAPG member **Pasquale Scaturro** is at it again, this time capturing his adventure-filled journey down the Nile on film for a new commercial production.

For your review – and comments – AAPG's **Strategic Plan** is unveiled.

Breakthroughs in geological understanding have transformed **Canada's Arctic region** from a source-limited basin to one that is rich in mature source rock.

APPEX, AAPG's annual fall prospect and property expo in Houston, kept its trend alive this year by being bigger and better than ever before.

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Courtesy of Bill Ayrton

Geologic splendor, such as the beauty of Castle Mountain in the Canadian Rockies, will be close at hand during the 2005 AAPG Annual Convention in Calgary. The meeting's call for abstracts deadline is Nov. 12. For more information see page 32.

PRESIDENT'S COLUMN

Survey Is Done, It's Time to Act

By PATRICK J.F. GRATTON

The leadership of the Association has the responsibility of responding to members' ratings of services and popularity of products.

Usually our understanding of your collective priorities comes anecdotally. That is, leaders in the Executive Committee (EC), House of Delegates (HoD), Advisory Council (AC), divisions, sections, regions, affiliated societies, committees and staff receive kudos and complaints from individuals. Often, unless it's a "no brainer," we have to question whether this properly reflects the members' collective attitude or at least a majority opinion.

Of course, accurate information on member likes and dislikes is critical to developing tactical and strategic plans (your input has been requested recently regarding our developing Strategic Plan). Fortunately, the 2003 All-Member Survey by Anderson Marketing Services gave the leadership good data in "Exploring Member Attitudes." A total of 1,461 members responded.

The survey showed that members ranked the EXPLORER, BULLETIN, North American conventions and special publications as numbers 1, 2, 3 and 4 in importance, respectively. Government affairs ranked number 5, followed by



Gratton

K-12 support, the Web site, short courses, field trips and certification.

Interesting to me was that government affairs (5) outranked certification (10).

Completing the list in descending importance were scholarships, AGI support, international conventions, group

insurance, division membership, technical training centers and Hedberg research conferences (number 17).

Your EC is challenged to deal directly with 15 of these member services. We work with the committees in performing routine maintenance, doing minor repairs and occasionally initiating major overhauls. Indirectly, the EC also is involved with certification and with division membership (approves officer candidate nominations and budgets and reviews medium- to long-range plans).

Not on the survey list are other important areas of focus, such as career

See **President**, next page

Officer Candidates Announced

Nominating Committee chairman Marlan W. Downey has announced the following slate of candidates, who will stand for AAPG election for 2005-06.

The president-elect winner will serve as AAPG president in 2006-07. The vice president will serve for the 2005-06 term, and the secretary will serve for 2005-07.

Biographical information and statements from all candidates can be found on the AAPG Web page (www.aapg.org), and also will appear in the January EXPLORER.

The candidates are:

President-Elect

Thomas S. Ahlbrandt, U.S.

Geological Survey, Denver.

Lee T. Billingsley, Abraxas Petroleum, San Antonio.

Vice President

Douglas G. Patchen, West Virginia Geological Survey, Morgantown, W.Va.

Steven L. Veal, DCX Resources, Denver.

Secretary

John R. Hogg, EnCana Corp., Calgary, Canada.

J. Michael Party, Wagner & Brown Ltd., Midland, Texas.

Panel to Explore Evaluator Certification

The first meeting of the Intersociety Exploratory Committee on the potential establishment of a Certification of Petroleum Reserves Evaluators program was held in late September at the Society of Petroleum Engineers annual meeting in Houston.

The committee, with representatives from AAPG, SPE and the Society of Petroleum Evaluation Engineers (SPEE), will evaluate the merits, interest and importance of establishing a Voluntary Certification Program for Petroleum Reserves Evaluators.

"During the past year there has been a lot of publicity regarding

reserves write-downs and concerns about the reliability of reserves disclosures," said Daniel J. Tearpock, AAPG representative to the committee. "From the standpoint of oil and gas companies and their investors, to Wall Street and the SEC, reserves are an important part of everyday life in the energy industry."

"We now have a business environment that demands higher standards throughout the energy industry and particularly the oil and gas sector," said Ron Harrell, at-large committee representative. "The investor deserves the assurance that a

company's reserves estimates have been prepared by qualified individuals who are trained to meet international industry standards."

Harrell, CEO at Ryder Scott, identified several vital components of a potential certification program, including recommended geoscience and engineering practices, reserves definitions, better standards, testing, continuing education and ethics, and he emphasized that this initiative is oriented toward individual professionals, not companies or corporations.

Richard Miller, SPEE representative,

said the committee's mission is "to evaluate the importance and feasibility of such an initiative, and to define the requirements for the certification of geoscience and engineering petroleum reserves evaluators. If the committee sees merit in moving forward with this initiative, the committee will recommend such action to our respective societies."

In the coming weeks, the committee said it will more clearly define its mission, the overall goals and milestones, and establish a timetable for future action. □

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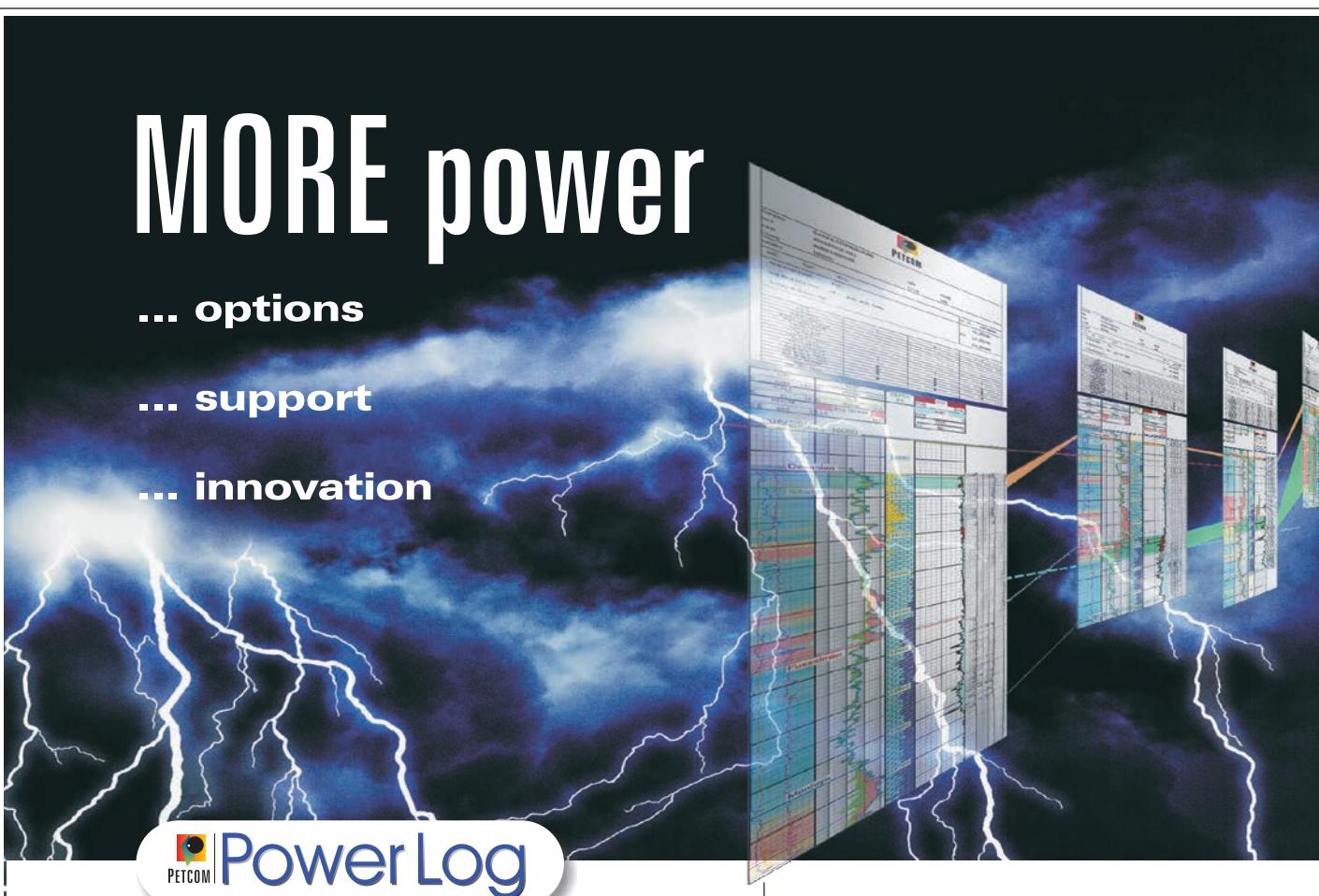
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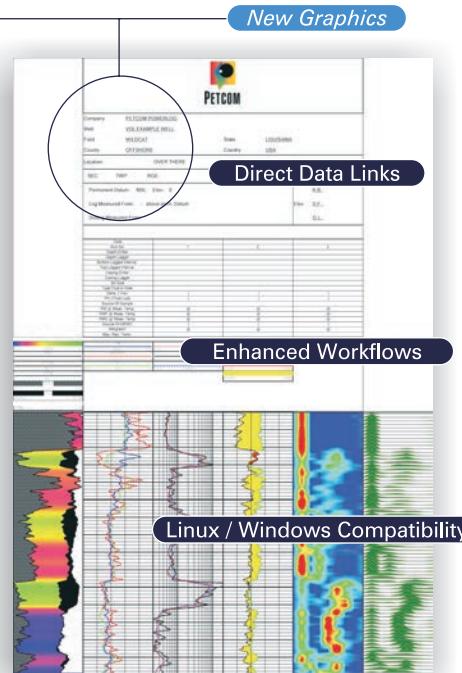
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President

from previous page

member services, plans for our 100th anniversary celebration in 2017, co-operation with sister societies and associations, etc. In many of these activities the EC involves the Advisory Council and interfaces with the House of Delegates where appropriate.

* * *

Most of the surveyed activities are alive and well. Quite a few have a venerable history, e.g., Visiting Geologist Program and Distinguished Lecturers.

However, at least two appear to not have been meeting our members' expectations. Respondents "voted" 89.84 percent for AAPG to be "active," "very active" or "extremely active" in informing the public concerning geoscience and energy issues. So, our nascent Public Outreach program needs more encouragement, participation and support.

Similarly, respondents indicated by an average score of 4.22 ("1" equals not important and "5" equals very important) that AAPG inform governmental officials in the United States about technical policies and issues that may affect our membership.

The same question regarding informing non-U.S. governments showed an average score of 3.64.

On the question of informing U.S. government officials about non-technical policies and issues that may affect or membership (e.g., tax reform), the average score was 3.63. The same question informing non-U.S. governments scored 2.95.

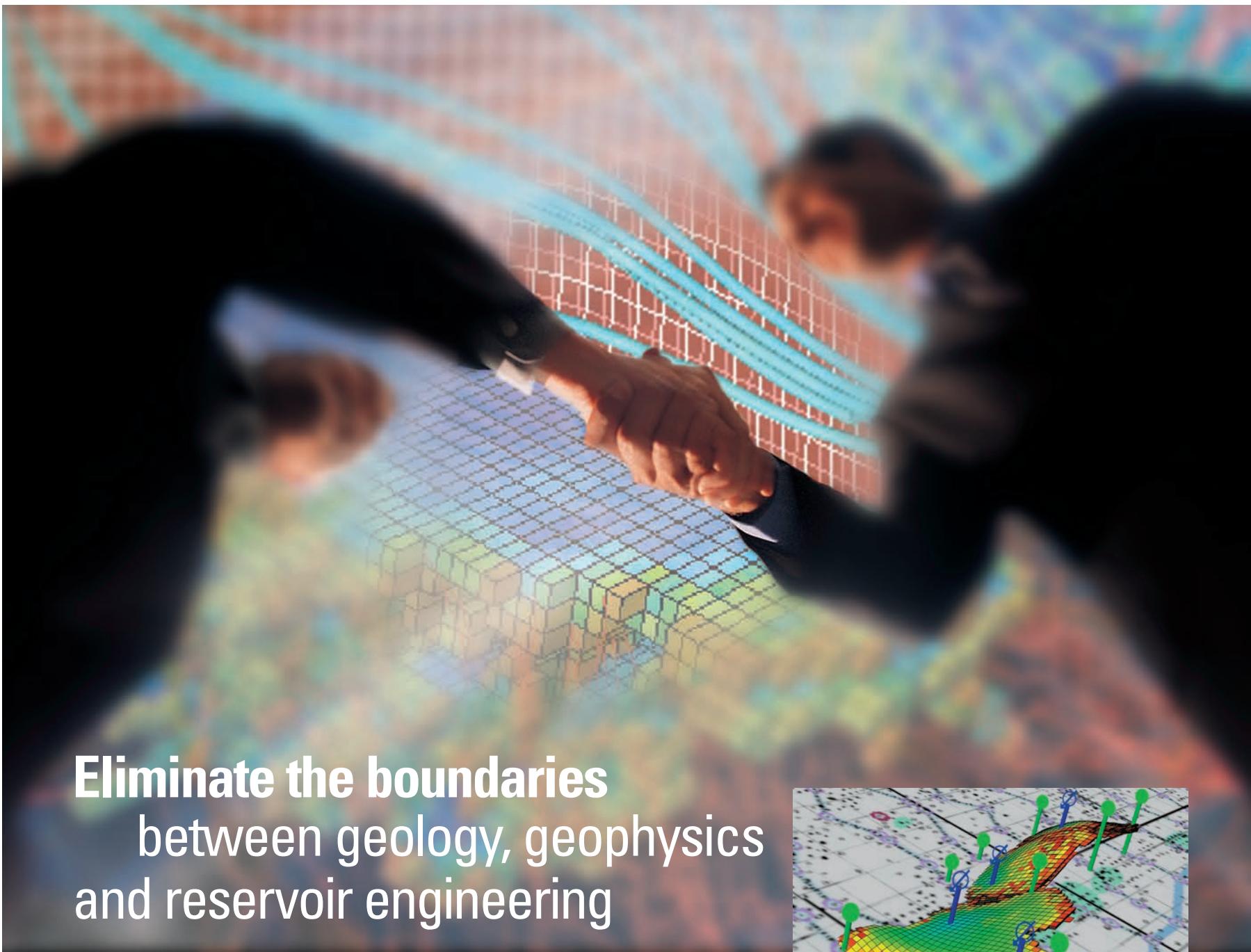
By a ratio of 680 to 436, respondents indicated AAPG should inform government officials about other issues besides scientific ones (258, or 18.78 percent, were uncertain).

Based on survey results versus Association actions, we have not responded fully and effectively regarding governmental affairs.

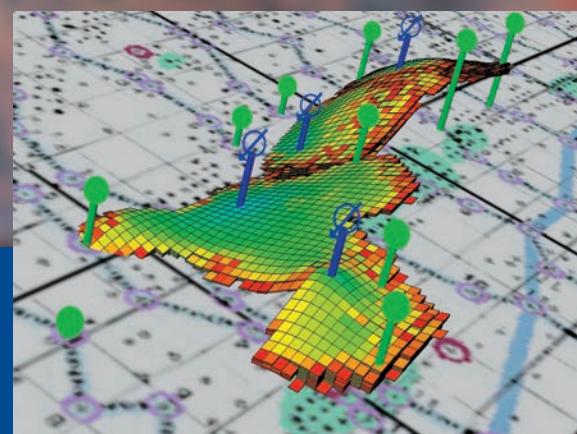
As president, I consider this an obligation to pursue. However, solutions must preserve AAPG's outstanding geoscience reputation.

Do you want to help in this endeavor? If so contact me at (214) 744-3869 or pjfginc@aol.com. Together we can make a difference!

And, thanks to those who have already contributed in many ways to this remedial work.



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Greenland Potential to be Gauged

Elephants Could be Hiding in Arctic

By LARRY NATION

AAPG Communications Director

It's November and the Arctic Circle is dark, except for the mesmerizing dance of the aurora borealis.

The sun disappeared over the horizon about half-past September. Temperatures are shrinking to as low as -94 degrees Fahrenheit.

The polar ice pack (sea ice) is expanding to the 14-16 million square kilometers it will be at winter's end – almost double the 7-9 million square kilometers it covered before the September sunset. The depth of the ice cap (land ice) can be measured in kilometers.

But shrouded here by nature's extreme harshness could be the resources required by human beings who aspire to a better-than-Stone-Age existence.

It is a huge area, and the oil exploration has been minuscule.

But Don Gautier, an AAPG member with the U.S. Geological Survey in Menlo Park, Calif., said "there are basins in the Circum-Arctic the size of Texas."

The need for new resources and the growing technologies to find and extract them has prompted an ambitious multi-country and industry effort to "take a serious cut at gauging the potential of the Arctic," he added.

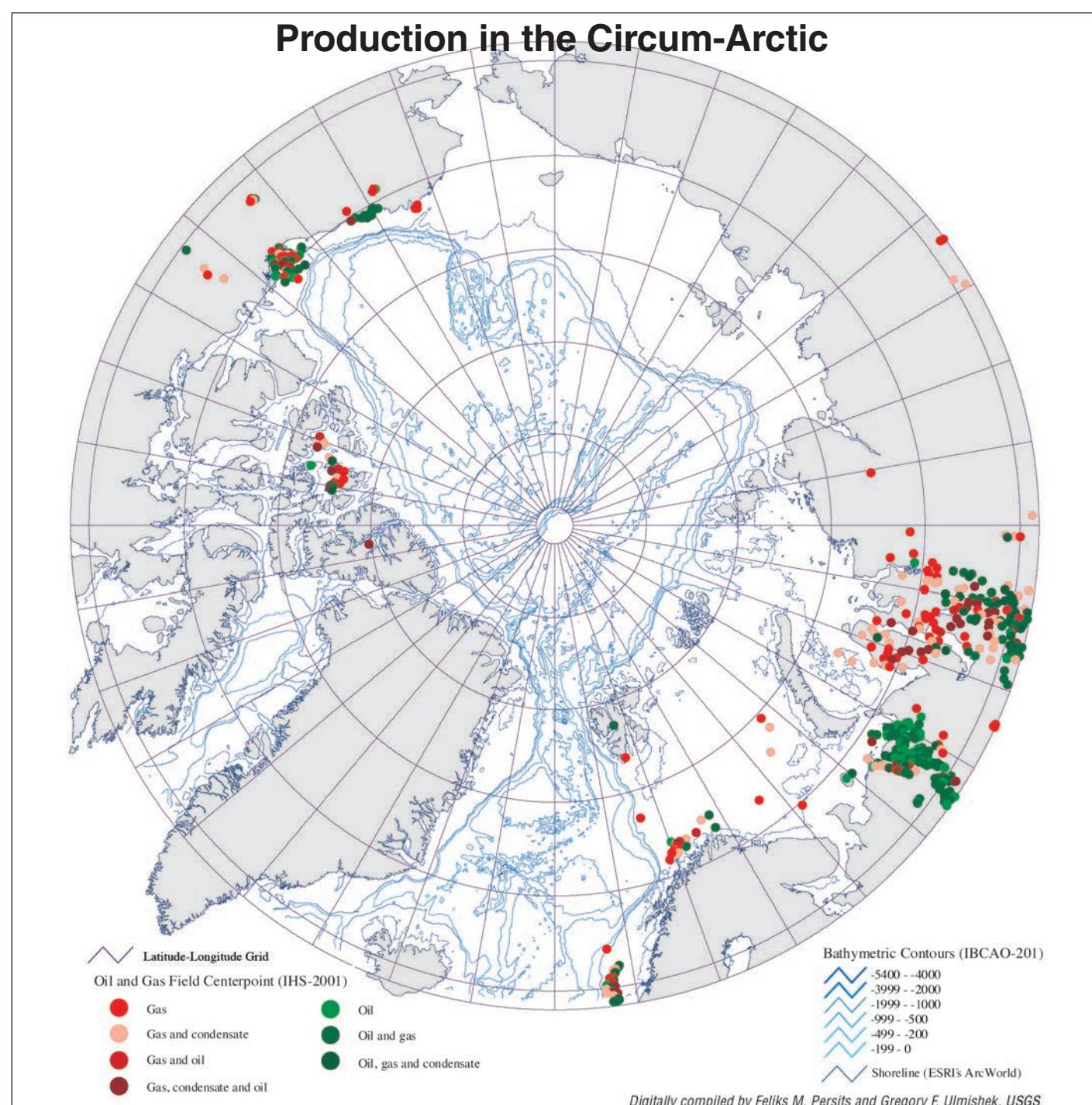
Gautier is heading up a recently launched USGS collaborative effort to measure the Arctic's resource potential as a part of the USGS World Energy Project, designed to provide timely assessments of future fossil energy supplies in a digital form.

It was at Ilulissat, Greenland, in August that a workshop was organized cooperatively by the USGS and the Geological Survey of Denmark and Greenland (GEUS) to address the opportunities, uncertainties and methodological issues surrounding the mission. Participants included geoscientists from the United States, Canada, France, Greenland, Denmark, Norway and the United Kingdom, with industry, academic and government ties.

Workshop presenters on the first day included AAPG President-elect Peter R. Rose and past AAPG President Dick Bishop, discussing risk analysis and methodology to assess frontier basins.

A Daunting Task

The tasks of finding and producing hydrocarbons are daunting. But all of the countries that share the geography of the Arctic Circle have met the challenge and



are producing oil and gas.

Almost all, that is.

Greenland, the world's largest non-continental island and about 81 percent ice-capped, has no oil production – yet. Greenland was granted home rule in 1979 by the Danish parliament. The law went into effect the following year. Denmark continues to exercise control of Greenland's foreign affairs.

The second day of the Ilulissat workshop focused on the assessment of West Greenland, where in the early and mid-1990s GEUS geologists discovered significant and fairly extensive oil seeps onshore near the country's west-central coast.

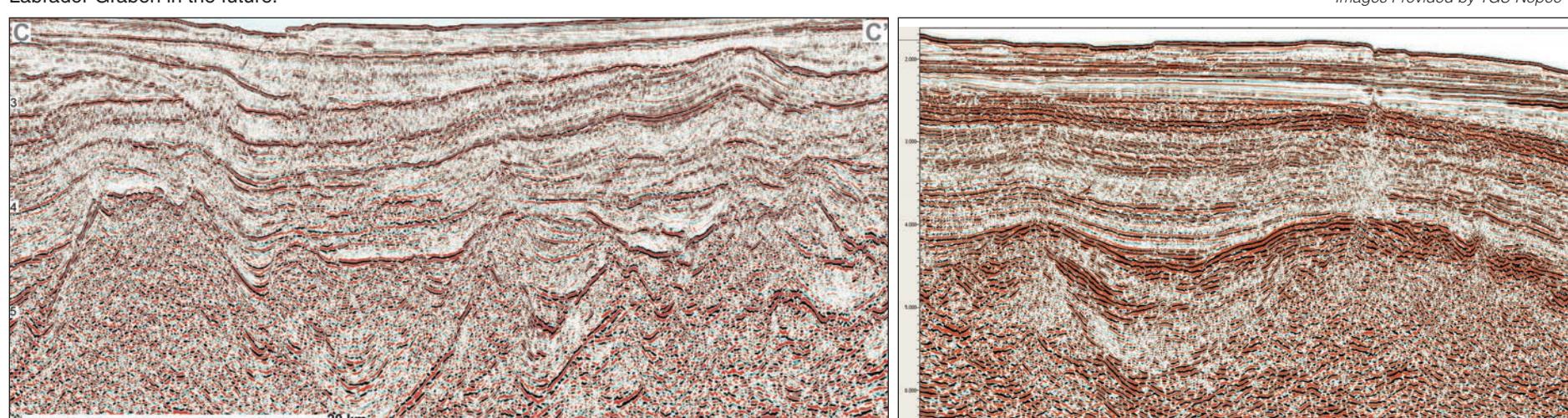
"We know that many majors have looked at the region and purchased data – but there are still a lot of myths and

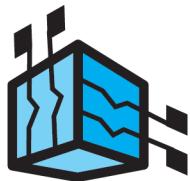
rumors to overcome, especially on ice and oil source rocks," said Flemming Christiansen, head of department, GEUS coordinator of Greenland Petroleum Studies and co-convenor of the Ilulissat workshop. "However, more and more data from seeps tell a different story."

See **Greenland**, page 8

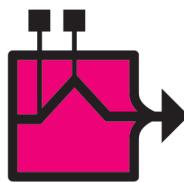
A seismic line from The Basin of Lady Franklin (left) indicates large closures with domes and normal faults and has attracted interest from companies, according to Jens Christian Olsen, of TGS-Nopec. At right, a line in a transition area between the Fylla Bank and the eastern Labrador Shelf. Olsen noted it is in an area that will be called the Labrador Graben in the future.

Images Provided by TGS-Nopec

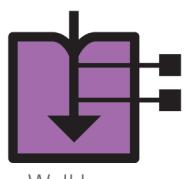




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Ilulissat ice fjord, West Greenland.



Greenland

from page 6

"The good news is that we have started to see evidence of older source rocks," Christiansen said. "Thanks to new equipment we can now analyze age-specific biomarkers from oil seeps, and we have for the first time strong evidence of Jurassic oils in West Greenland. At the same time we have also found reworked marine dinoflagellates of Late Jurassic age – the implications are very significant for the industry."

He also said there is evidence of the possibility of Ordovician source rocks, which were found from dredging, and some oil seepage onshore. "We do not however, know the thickness and distribution of this source," he said.

Christiansen said there is an ongoing

cruise with more sea-bed sampling, especially on inversion highs and within eroded canyon systems, plus a number of diapirs, sea-mounts and pock-marks.

"The next step could be shallow drill holes," he said, depending on what they find – and the results of a licensing round that closed Oct. 1.

The Big Chill

Jens Christian Olsen, of TGS-NOPEC, showed the group a sampling of seismic acquired from 1999-2003, which shows hydrocarbon indicators and a number of inviting structures that were part of the West Greenland licensing round.

Olsen, who also has presented the seismic at AAPG annual meetings, said management interest in the area is beginning to grow. He said the investment in 30,000 kilometers of new data is at break-even for the company.

Six wells have been drilled in Greenland waters south of Baffin Bay – all dry holes, but with some tantalizing oil shows.

EnCana Corp. is presently the only license holder, with blocks off West Greenland. Marc Cooper, vice president of new ventures, said seismic has been shot and mapping is under way.

He said EnCana is looking to bring in a partner in the next six-nine months, or farm it out before.

"Prudent risk management is required," he said.

It's required because exploring in Greenland's waters is hardly cheap, even though it does not face the rigors that sea ice presents. The Statoil well drilled in 2002 is said to have tabbed out in the neighborhood of \$25 million (U.S.). Both Christiansen and Olsen said the high cost, however, was due mainly to normal technical problems and cannot be related to ice. The summer wells drilled offshore West Greenland do not have to face the rigors of sea ice, which is a very different issue from icebergs, according to Cooper.

The Greenland ice sheet is thousands of meters thick – and constantly shedding enormous icebergs into the surrounding seas. The icebergs initially head north before turning south in Baffin Bay, then move down the Labrador coast to end up off Newfoundland.

"The big question is how do you deal with ice," he said.

For example, while the Hibernia Field in the North Atlantic can be worked year-round, areas of sea ice can only be worked in the summer months.

"If I find a field that could only produce for six months a year," he said, "the economics get pretty difficult."

Cooper said possible scenarios in relatively shallow waters might include subsea completions with a tie back to the coast.

Successful experiences at BP and ExxonMobil's Sakhalin Island project off eastern Siberia – as well as prospects in the MacKenzie Delta being explored by EnCana and PetroCanada, and others – are adding to the knowledge bank of how to deal with difficulties posed by the high latitudes.

But getting back to risk management, a large factor is defining, as closely as possible, if the risk is commensurate with the reward.

That's what Gautier and the Circum-Arctic international consortium of governments and industry are going to try to quantify. Gautier said the goals are to provide a scientifically grounded view of the resources, make available compiled original tectonic and stratigraphic maps and an oil source rock compilation.

The goal is to release results in 2007 – the International Polar Year. □

(Editor's note: Next month, a look at Canadian Circum-Arctic activities.)

Big Bytes from the Land of Big Bites

The ancient rocks of Wyoming have attracted paleontologists and explorationists for decades. Pursue your next bigger-than-life discovery with the big bytes of JEBCO's new South East Jonah, Pinedale West and Sublette Flats 3D surveys in Sublette and Sweetwater counties and leave your prehistoric colleagues behind.

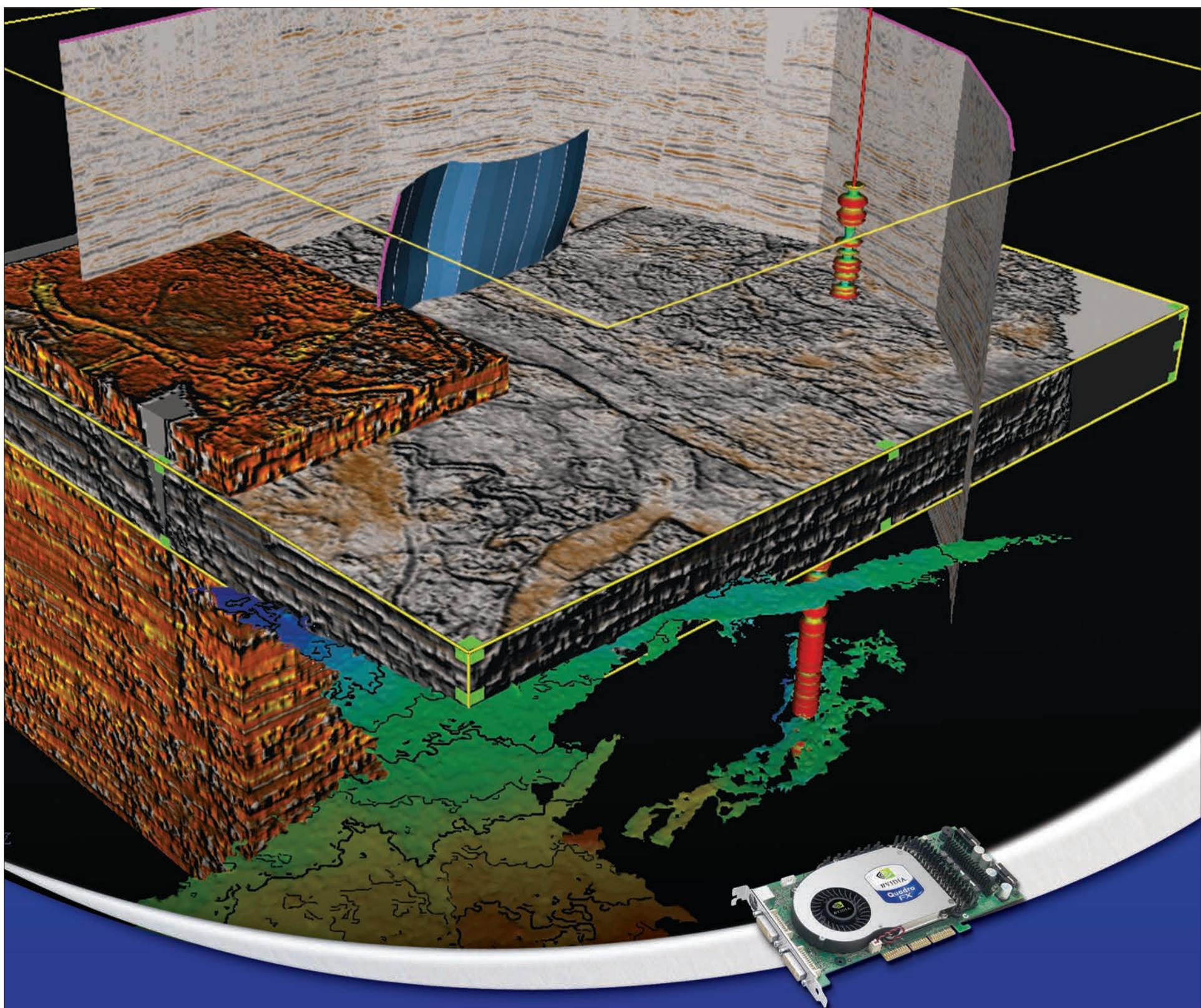


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Auction Theory Usefulness Has Oily Origin

Bid Winners Can Face ‘Curse’

By DAVID BROWN

EXPLORER Correspondent

You won an auction with the high bid?

Too bad.

Even today, auction theory says the highest bidder probably will experience the “Winner’s Curse.”

It's a concept straight out of the oil industry, and a big reason a number of industries call on auction theory when devising bids.

Auction theory can't tell you what to bid, but it may help you avoid the trap of paying too much.

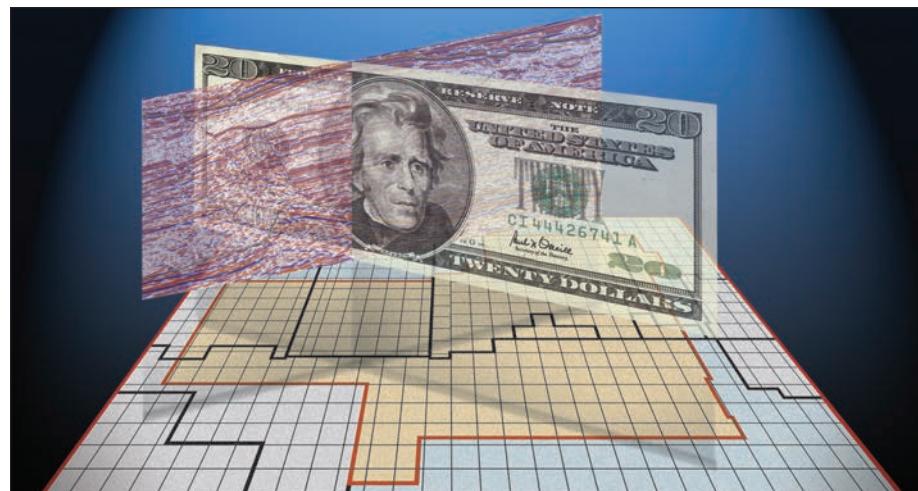
In fact, “the usefulness of auction theory is the Winner’s Curse,” said John Morgan, professor of economics in the University of California-Berkeley’s Haas School of Business.

A number of bidding strategies exist for different types of auctions.

In the end, they all come down to two rules for winning an auction without overpaying.

The Winner’s Curse

The seminal paper on the Winner’s Curse was written almost 35 years ago by three employees of Arco – Ed Capen (an AAPG member who has taught several courses for AAPG and wrote articles for the AAPG Treatise book the *Business of Exploration*), Robert Clapp and William Campbell. The paper was “Competitive Bidding in High Risk Situations” in the *Journal of Petroleum Technology*, in 1971. That article coined the term “winner’s curse.”



EXPLORER graphic by Rusty Johnson

The researchers were charged with avoiding a repeat of a sale in which Arco bought everything it bid on and put the company in budgetary straits for a couple of years.

And the reason for those low returns? The authors suggested that the winning bids for leases were too high to allow for a decent profit.

Consider the range of bids in a lease sale, said John Kagel, professor of economics at Ohio State University.

“Suppose those are unbiased estimates. Some are going to be too high, some too low. Some are going to be right in the middle. It’s a standard distribution,” he explained.

Everyone will estimate a value for the lease and then make a bid below that, leaving room for profit.

“If everybody uses the same rule of thumb – say they all take off 30 percent from their estimate – then the one who’s going to win is going to have the highest estimated value,” Kagel said.

Some bids will undervalue the lease, and some will overvalue it. Whoever errs the most on the high side will win the auction. In many cases, this also means that the winner is the person who has overestimated the most.

“That’s the Winner’s Curse,” Kagel noted.

The curse is still with us, even after all those years, and even though everyone knows it exists.

Morgan cited the stock market’s reaction to company acquisitions as a real-world example.

“When a company announces it has

succeeded in acquiring another company in a bidding war, the stock price of the company that makes the acquisition suffers negative abnormal profit,” Morgan said.

That means its stock price goes down. The market perceives the acquirer must have overpaid, simply because it was the high bidder.

“You want evidence that the Winner’s Curse is with us today, and that there’s a huge amount of information out there in the fact you’ve won? This is Exhibit A,” Morgan said.

Auction Action?

Google generated plenty of media coverage when it chose an auction to value its initial public offering of shares.

It used a form of Dutch auction, in which more bidders buy in as the share price drops from a high level.

Those first buyers got a bargain, as it turned out. Google’s stock price went up by 50 percent within a few weeks.

What can the petroleum industry learn from the Google experience?

“Nothing,” agreed Kagel. But the *Wall Street Journal* wrote that bidders were reading up on the Winner’s Curse as they readied their strategies.

Still, it’s helpful to understand the main types of auction.

✓ **English Auction.**

In an English auction, bidders bid against each other as the price rises. When

See **Bid Strategies**, page 12



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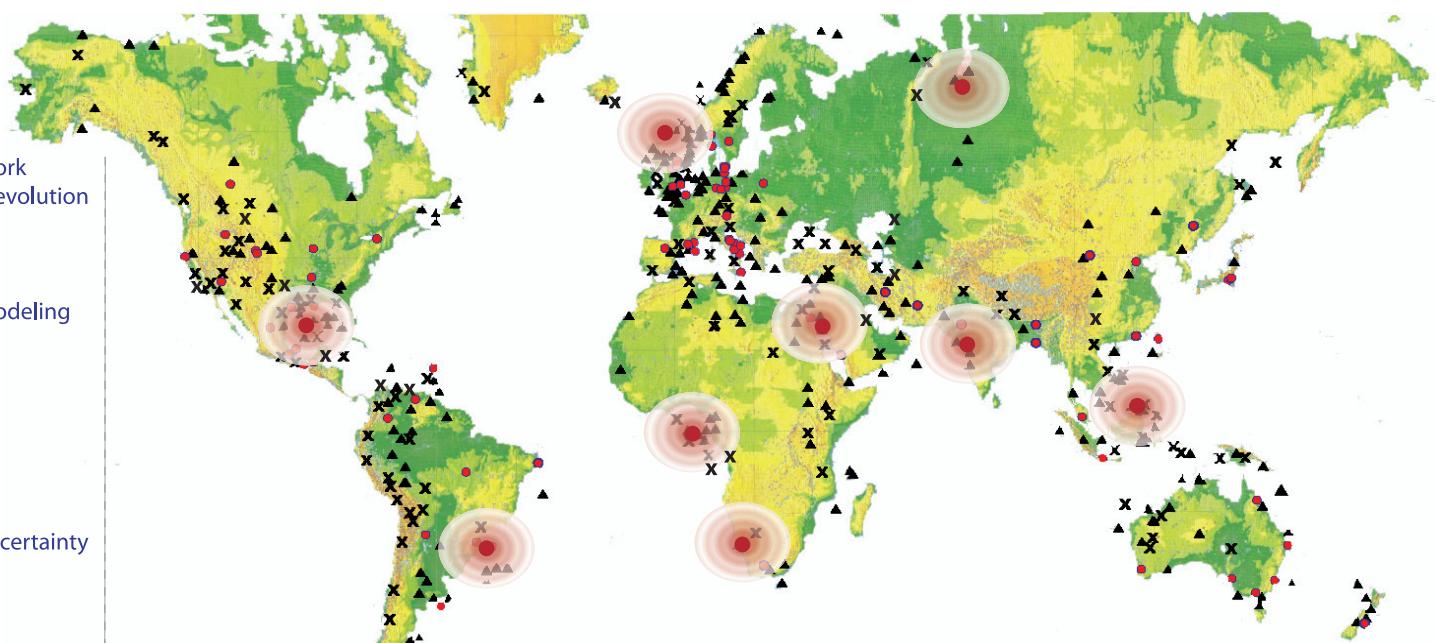
- 3D structural model to feed basin modeling
- Burial history
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- Pinpoint salt weld timing
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- Fault movement

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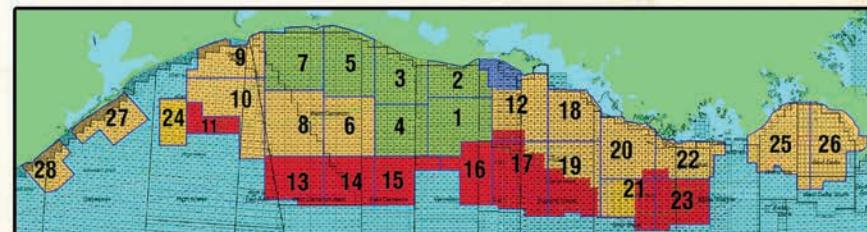


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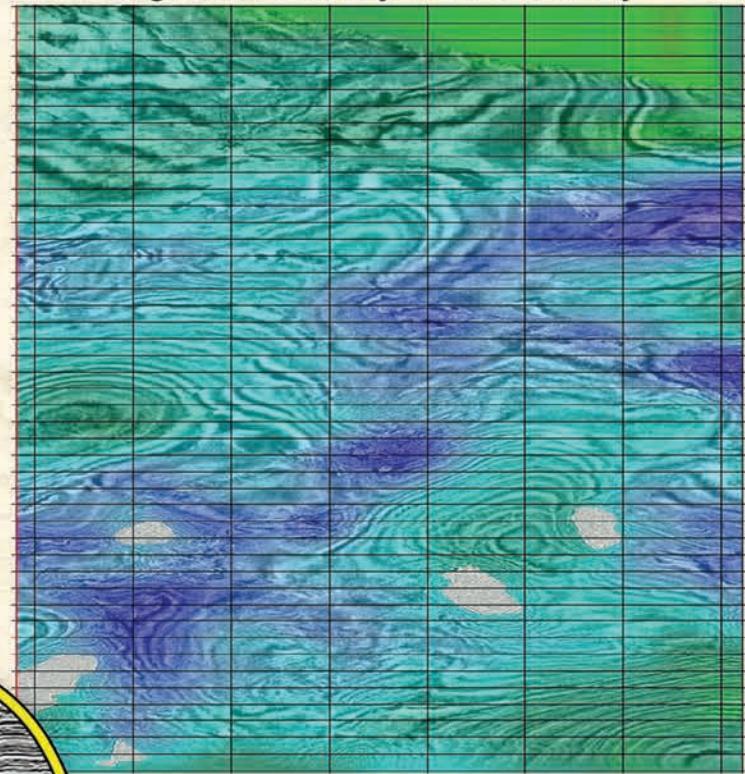
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PSTM Gather

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**FAIRFIELD
INDUSTRIES**

Bid Strategies

from page 10

only one bidder remains and no other bidder will raise the bid price, the auction is over.

Notice that all of the bidders know exactly what others are bidding in a typical English auction.

✓ First-Price Sealed-Bid Auction.

In this auction, everyone makes one bid according to each bidder's estimate of value. The highest bid wins and pays the bid price.

No one knows what anyone else is bidding, so the highest bidder isn't aware of winning until the bids are opened. That's "a huge piece of information," Morgan said.

✓ Second-Price Sealed-Bid Auction.

The winner pays the second highest bid price in a second-price auction. Other rules are similar to the first-price auction.

"Knowing you will pay the second bid should force you to bid a higher amount than in a first-price auction," Capen said. The goal is to maximize net present value.

✓ Dutch Auction.

The general form of the Dutch auction starts with the auctioneer setting a high price and then lowering it until a bidder agrees to pay the price.

You'll find many variations of this idea. Car sales begin with a high list price, and buyers pay progressively lower prices until the lot is cleared.

Strategy Lesson 1

Morgan said almost any oil company can draw on seismic studies, evaluate a

lease bloc and arrive at a net present value (NPV) number in a lease sale.

"You might think if you are bidding, a sensible strategy would be (to start with) that NPV and then take an amount below that to allow for a reasonable profit," he said.

But that won't work, because, depending on the opponent's strategy, the most optimistic valuation always wins, he noted.

"That's not good, because there's noise in these seismic studies, and you've just found out that you bid too high," Morgan said.

"The right bidding strategies in these auctions is knowing other people's bidding," he added. "Know thy enemy."

Since you don't know the amount of the other bids in a sealed-bid auction, you have to understand your opponents' bidding practices and motivations.

Luckily for bidders, the petroleum

industry has built up a significant history of lease sales and other property auctions, Morgan said.

"The one thing about the oil business is that there's a rich empirical literature about how these auctions work," he noted.

Auction theory says to consider the bidding situation and reduce your bid by an appropriate amount, a practice called "hedging" the bid.

"How much to shade (hedge) depends on how many other bidders there are and what strategies they might employ," Morgan said.

But bidding strategy gets a little quirky in lease sales and other industry auctions, according to Kagel.

You might think you should hedge your bid less when a large number of bidders participate. Having more bidders will force the winner toward full value and reduce the chance for profit.

That makes perfect sense, but it's all wrong.

"In petroleum auctions, after you get more than two or three bidders, you should shade your bid a little more," Kagel said. "That's one of the odd characteristics of mineral rights auctions."

Strategy Lesson 2

Again, consider the range of bids as a standard distribution, Kagel said. With more bidders you have a wider distribution of bids.

That gives you more chance of bidding too high.

To compensate, you should take a little more off your bid price, Kagel explained.

Governments offering mineral leases also call on auction theory to choose the right strategy.

The most basic choice is the type of auction to hold. Timing and the structure of the offer also make a difference, according to Morgan.

"One big issue is the ordering of the lots," he said. "If a small-time guy wins a bid early on, he's out of the picture."

In revealing information about leases in an auction, you might think the leaser should hold something back. When bidders are forced to guess about real value, they might guess too high.

But that's all wrong, too, Kagel said.

"It's the lack of information that creates the opportunity for profit," he said.

"The best thing to do would be to try to provide maximum information about what's under the ground," he added. "That reduces the companies' expected profit."

If everyone follows the right bidding strategy, Kagel explained, they will compensate for lack of information by reducing their bids.

Suppose you are bidding on something that might have a value of \$1. If you can't be sure of the value, you will bid well below \$1, Kagel noted.

But what if you find out the auction is for a \$1 bill? Then all of the bids will tend to rise toward \$1, because the exact value is known, he observed.

Can lease auctions be fixed? Probably not, at least not without difficulty – and not by the bidders.

"In a first-price auction, the way that most oil tracts are auctioned, it's not really going to work," Morgan noted.

"The only way that you're really going to affect the price is if you bid the most, but in that case you're on the hook for the tract, and you don't particularly want that," he said.

Auctions combine knowledge, gamesmanship, game theory, expertise, experience and intuition.

In the end, auction theory appears to come down to just two rules for winning an auction without overpaying.

Rule 1: Don't bid too high.

Rule 2: Don't bid too low, either. □

(Next month: A chat with Ed Capen.)

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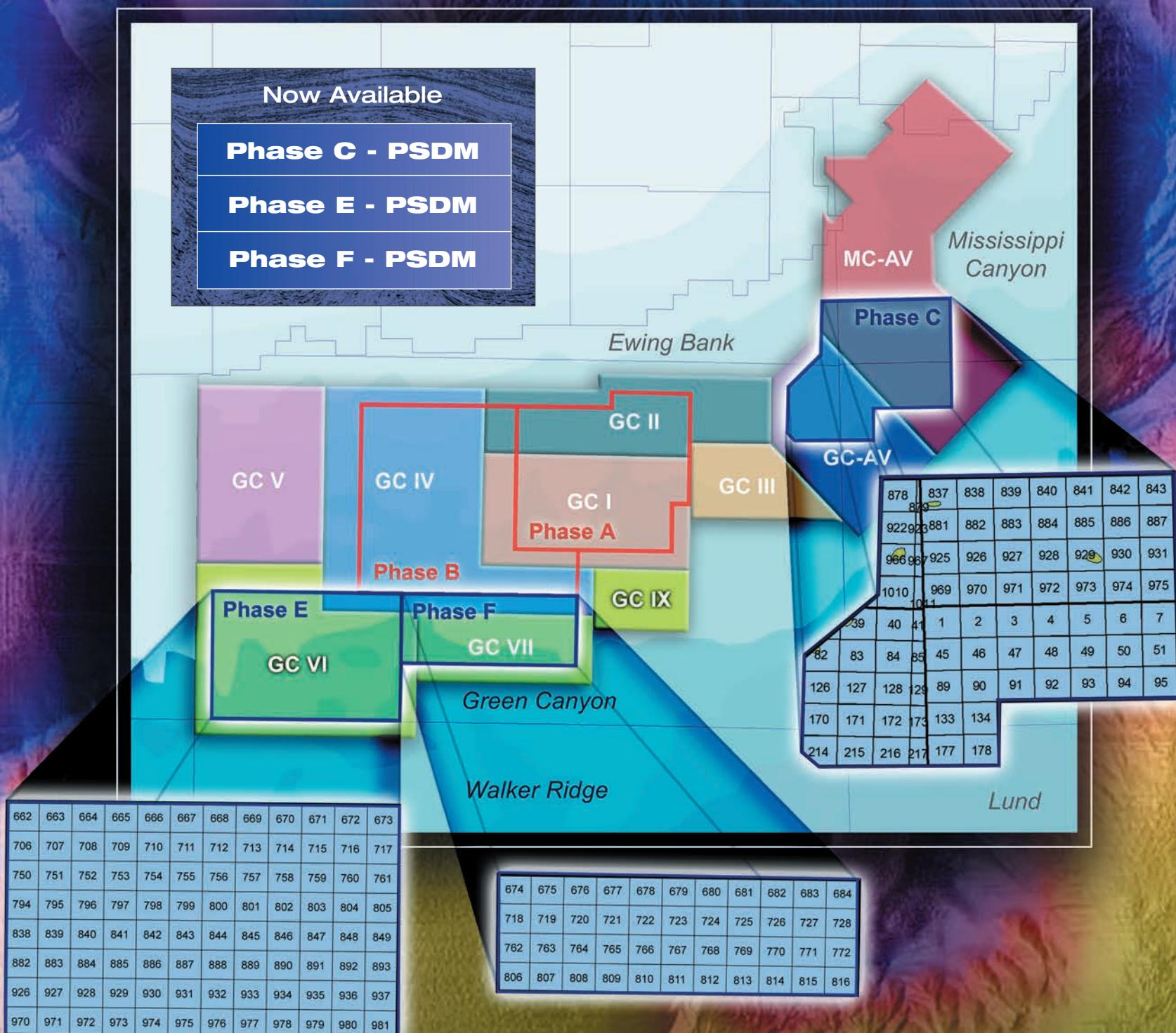
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Bandits and Hippos and Crocs, Oh My

Adventurous Life Is the Reel Thing

By BARRY FRIEDMAN
EXPLORER Correspondent

When Pasquale Scaturro calls, he is at Montreal's airport, on his way to Bismarck, N.D., where he will meet up with a group from Missouri.

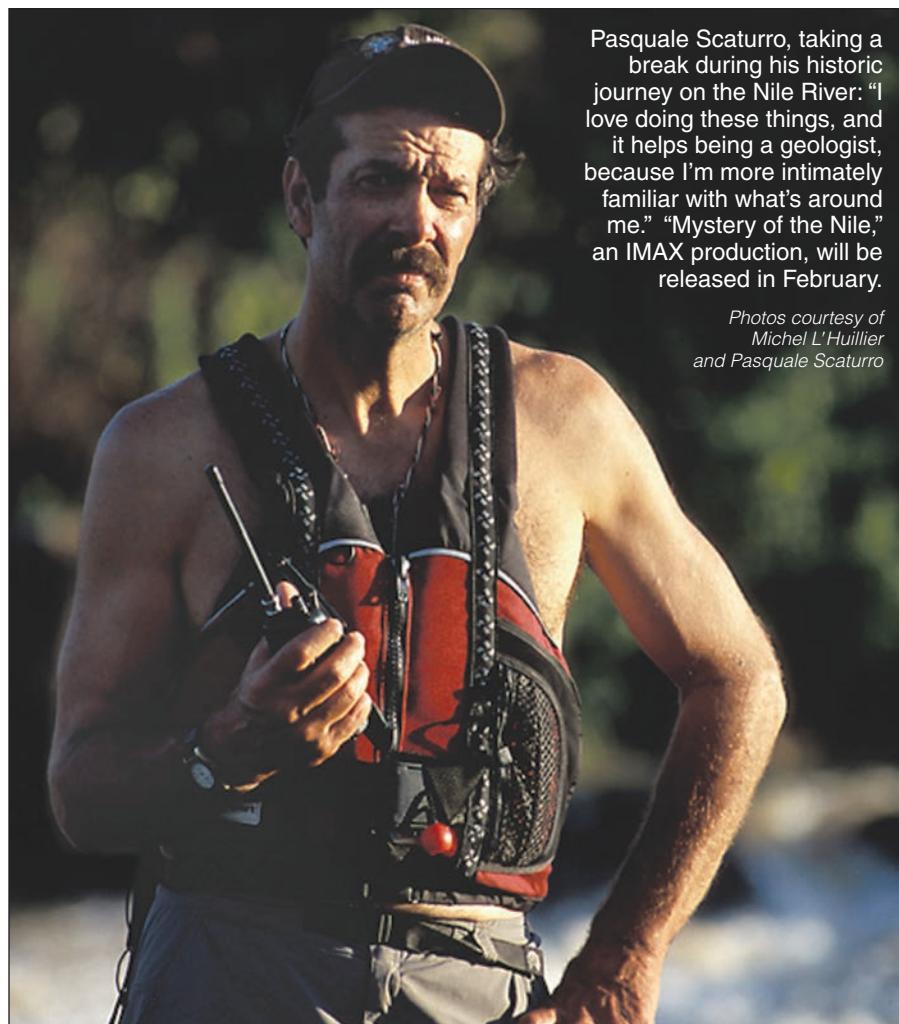
And, in fact, a world-class explorer and geologist *should* be calling from an airport in Canada, waiting for a flight – or from a police station in Ethiopia, waiting to be released from custody – and not from a Lay-Z-Boy in his den, watching *Seinfeld* and eating Cheetos.

"It's called Great Escapes," he says of the next "adventure" in a life already filled with enough expeditions and stories to fill a book or two. "I am leading an expedition from the source in the Centennial Mountains downstream to the mouth of the Missouri River," he shouts, as the planes and recorded announcements drown him out.

For Scaturro, it's just the latest in a long line of adventures for the AAPG member that have taken him from the world's great seas to the top of the world – literally – often with film crews close by, documenting his trips for TV, documentaries or commercial films.

"It's pretty soft core," he adds of his next venture, an almost 2,600-mile journey he's leading for an MSNBC special, equating these types of excursions with those of a professional golfer playing in a Pro-Am.

"But I love doing these things," he adds, "and it helps being a geologist, because I'm more intimately familiar with



Pasquale Scaturro, taking a break during his historic journey on the Nile River: "I love doing these things, and it helps being a geologist, because I'm more intimately familiar with what's around me." "Mystery of the Nile," an IMAX production, will be released in February.

Photos courtesy of Michel L'Huillier and Pasquale Scaturro

what's around me."

It's a long way and a welcome diversion from the hardcore Christmas day in 2003, when Scaturro and a team of explorers set out to become the first to complete a full descent of the Nile River, from its Blue Nile source in the mountains of Ethiopia to its terminus just north of Rosetta, Egypt.

Four months later, he and his expedition partner Gordon Brown reached the mouth of the Nile at the Mediterranean Sea, completing the 3,250-mile journey.

To reach their destination, Scaturro and Brown overcame:

- ✓ Class IV and V rapids of the upper Blue Nile, where two capsizes forced one team member to quit the expedition.
- ✓ Deadly crocodiles and hippos.
- ✓ Arrests by Ethiopian and Egyptian militia.
- ✓ Gunfire from Sudanese bandits.
- ✓ Extreme temperatures.
- ✓ Violent sandstorms.
- ✓ Exposure to malaria.

All this, of course, while attempting to film the journey's events with an oversized IMAX camera – a camera, Scaturro says he worried would be confiscated by any number of armed militias.

"The stress was daunting," he says.

His trip down the Nile, which took them through the remote desert gorges of Ethiopia, through the arid plains of

See **Scaturro**, page 16

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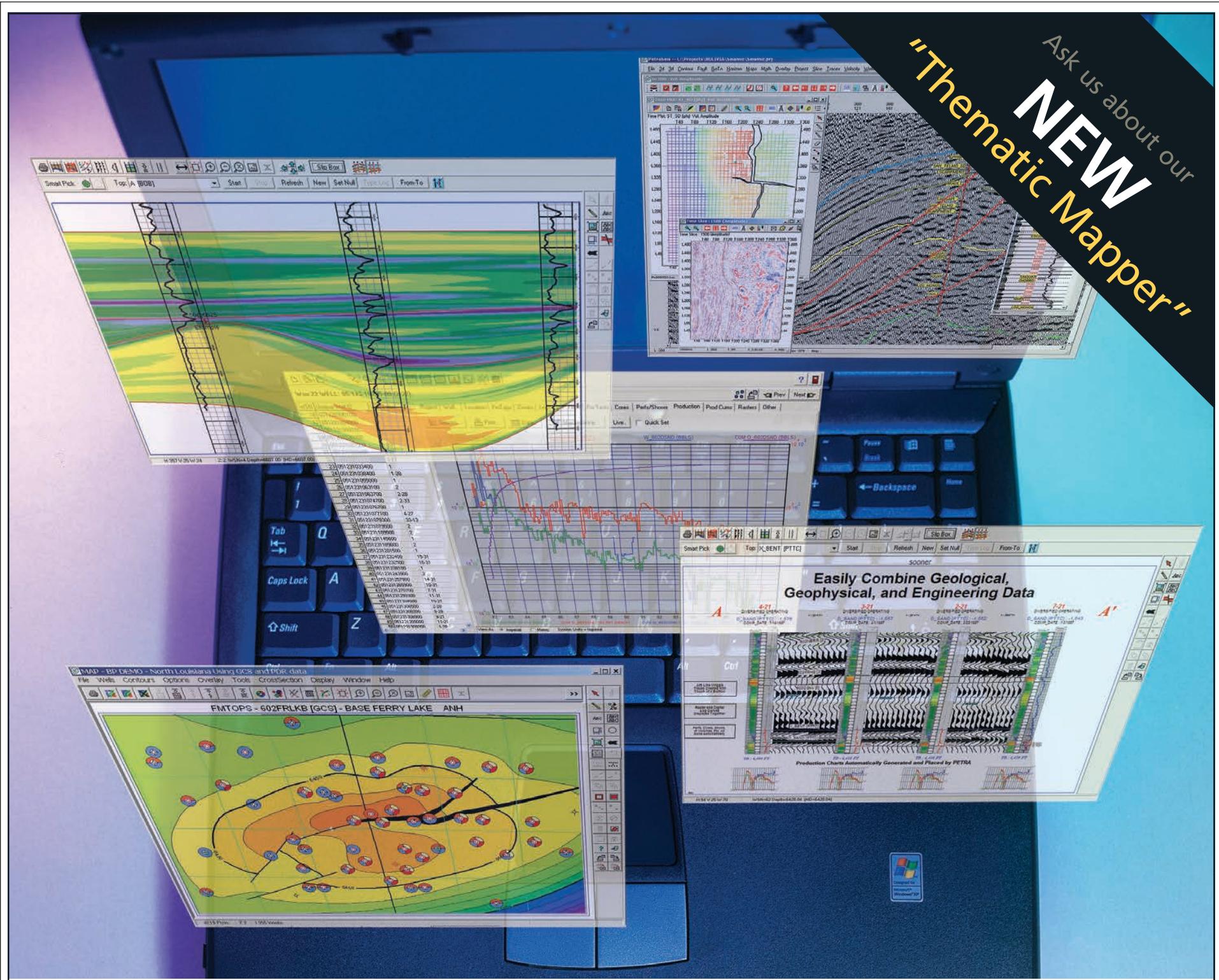


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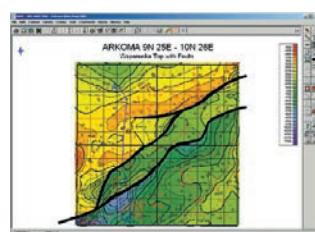
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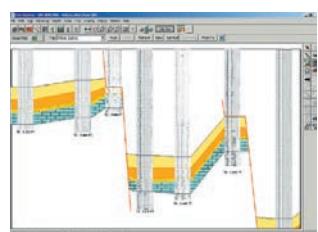
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17	Wumund 1-B	1189	1.48	1.58	0.42	1.58	431				
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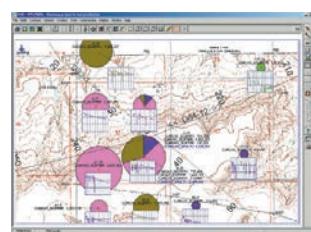
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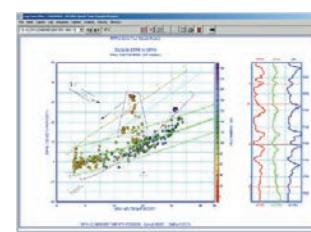
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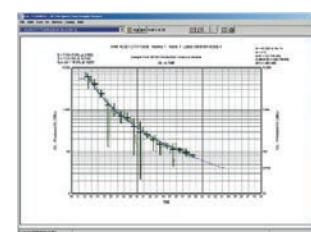
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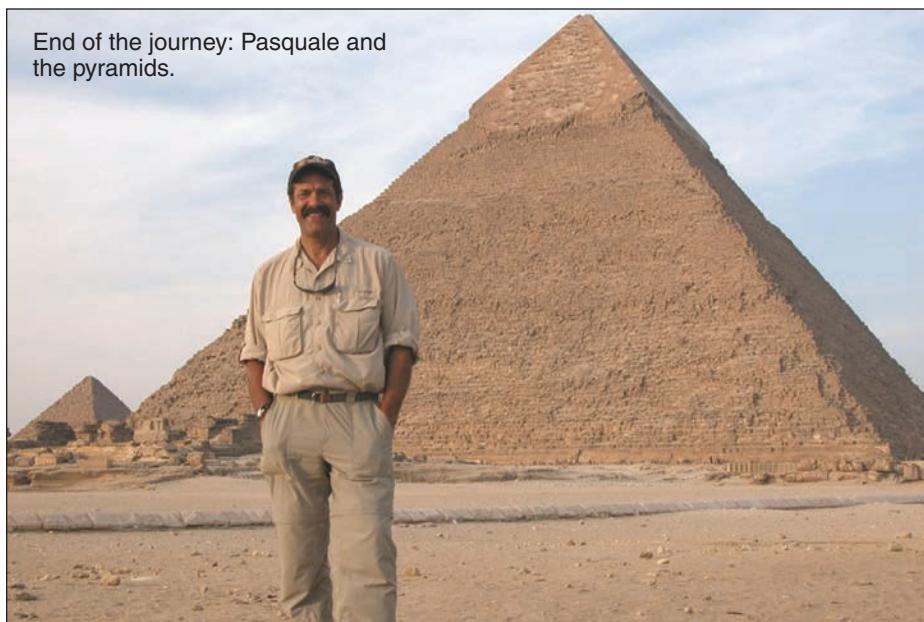


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End of the journey: Pasquale and the pyramids.



Scaturro

from page 14

Sudan to Khartoum where the Blue Nile merges with the White Nile to form the Nile proper, through the port cities of Egypt and on to the Mediterranean Sea is the focal point of a new IMAX film, called "Mystery of the Nile."

That movie is slated for release in February.

"I love doing these things," he says. You want to ask an explorer "why?" But if you wait, they'll tell you anyway.

"I have this expression," Scaturro says. "How hard can it be?" You get on a raft, try not to drown; you try not to be eaten by crocodile. And if it gets too hard, you stop."

At the time of the trip, Scaturro was

quoted as saying, "The Nile is the most magnificent river in the world. And no other river in the world is as closely associated with a particular culture and society as is the Nile. And without (it) there would be no Egypt, no pharaohs, no pyramids. The history of the Western world is inextricably tied to the Nile."

But that doesn't mean the frontier is accommodating to visitors.

As for being arrested, Scaturro laughs. Well ... now he laughs.

The first occurred in Ethiopia.

"We were about to set up camp one night in Ethiopia, when we were approached by soldiers from Benishangul-Gumuzo (a region inside Ethiopia that isn't happy with the government). That night, we set up perimeter guards. Two on guard, one for each raft. After going to bed, I heard yelling across the camp. I come out and saw that the militia commander was sitting in my chair, telling us to come with him. I told them we're not leaving the camp, we're not leaving the equipment, the camps, the rafts, and we're not going anywhere."

Then Scaturro saw dozens of armed men and thought, "Ahh, —!"

The situation was resolved the next day, but only after satellite cell phone calls to Addis Ababa, hours of negotiations and overtures to both the Ethiopian and American embassies.

He was arrested the second time when the team tried to get into Egypt.

"Now that was scary," he said.

"Egyptian soldiers are serious."

Scaturro, who just turned 50, is having a mid-life crisis. But men who have climbed Mt. Everest with blind men (at least, as the joke goes, that's where he told the blind guy they climbed) have different kinds of mid-life crises than the rest of us.

Scaturro laughs. "Yeah, we joke with Erik (Weihenmayer, the blind explorer) about that, and he gets pissed. We tell him we took him to Rainier."

Then the talk gets a little serious.

"Turning 50 is kind of sobering, and then it's a matter of getting your ass in gear," Scaturro says. "I decided not to worry about getting old, just to enjoy myself."

Maybe not just.

"Look, I am heavily involved in oil and gas," he continues. "I'm not a commercial guy; I usually prefer a career in the oil and gas industry. For one thing, the money's better."

He says, again, how much he enjoys the industry and those in it.

"Most of them are just drunks," he laughs, knowing he'll see many of these geologists at an upcoming convention or other meeting and have to explain this comment. "I don't know why they're in science. But petroleum geology is a fun science and geologists are fun guys – not like engineers."

As for the difference between climbing up Everest or rafting down the Nile:

"It's a different game, operationally more difficult than Everest," he says, specifically about the ordeal of the six-month journey and the matter of the Ethiopian crew, which, surprisingly, could not swim.

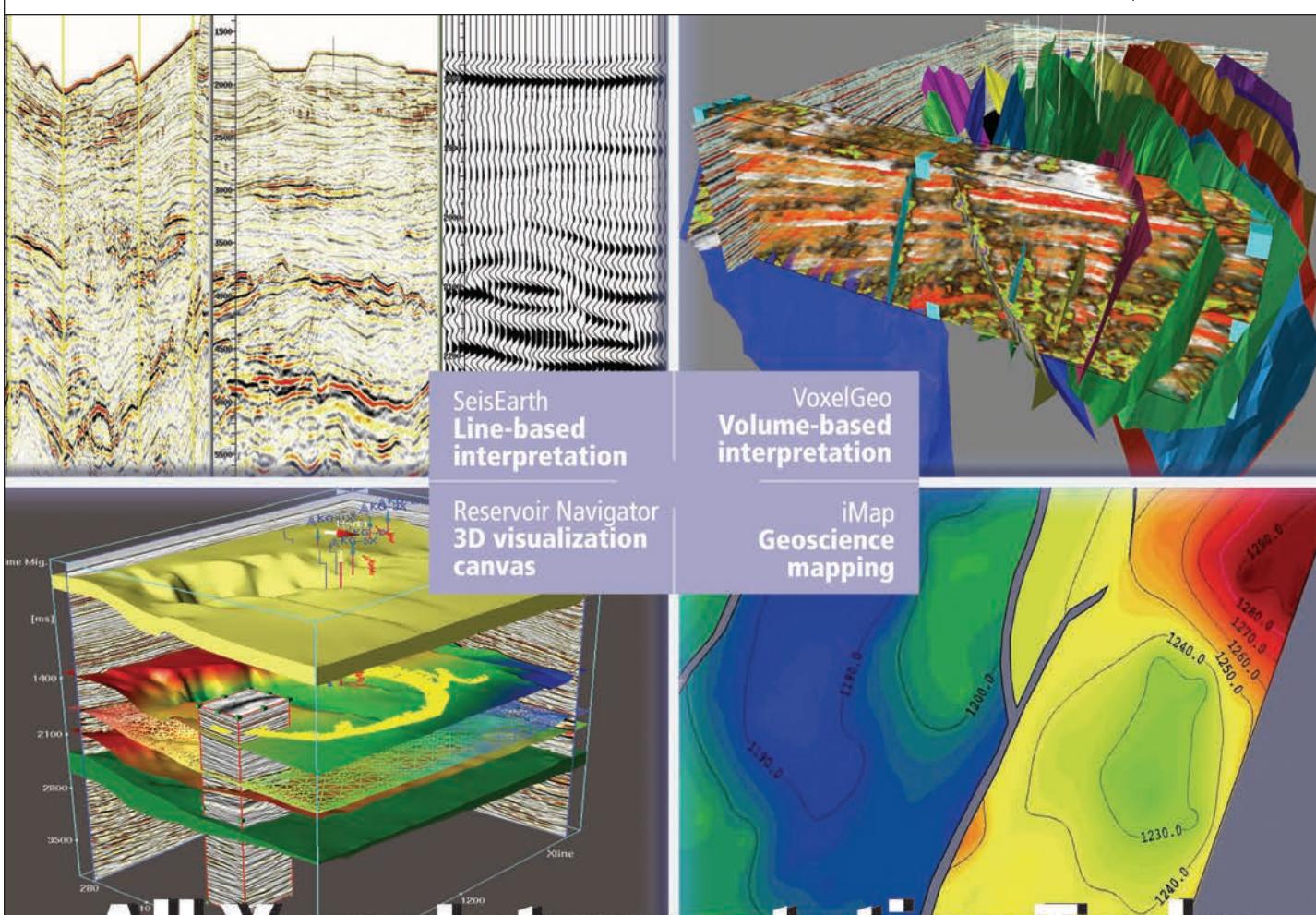
"If you lost someone, you might never pick them up."

"Then there were the crocodiles," he says.

"Anyway, when there are crocs," he laughs, "Ethiopians can swim."

"Exploration is exploration, I get a thrill out of it," he says. "And you know, there are only so many months in life left. I wouldn't do the Nile again, but there are other rivers I would."

But first there's that group from Missouri waiting in North Dakota. □



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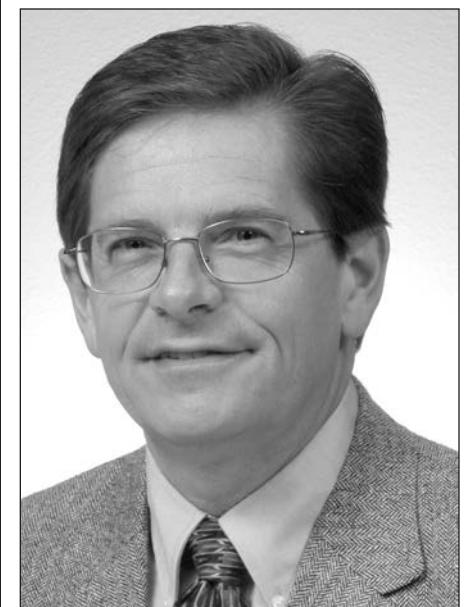
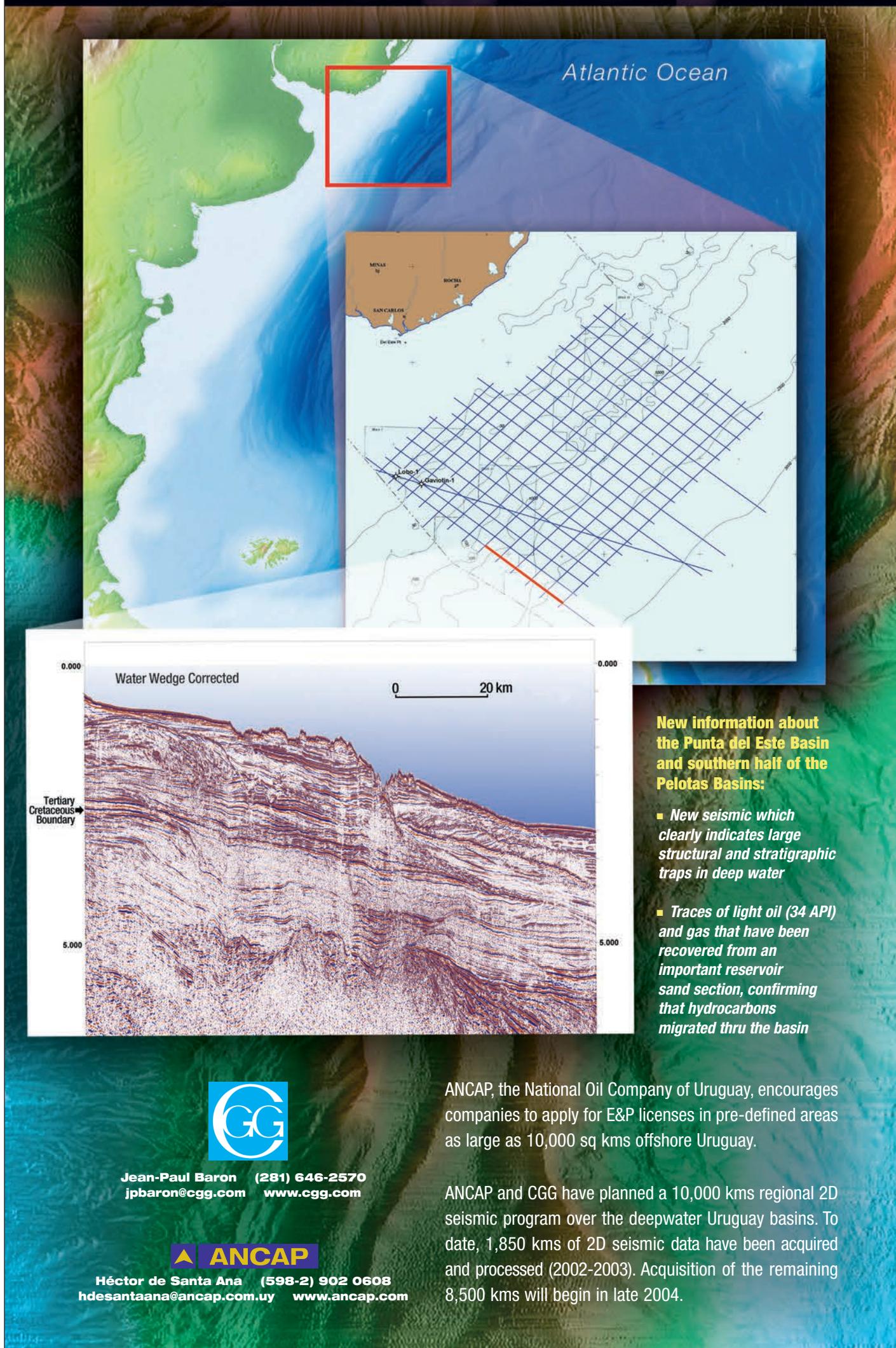
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Blankenship

AAPG Names Geoscience Director

James B. "Jim" Blankenship has assumed the duties as AAPG geoscience director.

Blankenship joined AAPG from ConocoPhillips in Houston, where he was manager of Integrated Studies, Upstream Technology. Previously he was manager of Basin Fluids and Systems, Upstream Technology.

A native of Colorado, he holds a bachelor's degree in geology from California State University, Long Beach. A member of AAPG since 1975, he also is a member of the Division of Environmental Geosciences.

Blankenship joined Phillips in 1985 and held a number of positions, including basin evaluation manager at the Bartlesville, Okla., headquarters; exploration manager for U.K. and Ireland, based in Woking, U.K.; exploration manager for the FSU; international future ventures manager; and other positions involving domestic and international exploration.

Prior to joining Phillips, Blankenship held posts with Aminoil USA, Southern California Gas Co., McCulloch Oil and Core Laboratories.

As geoscience director, Blankenship will oversee the activities of the Hedberg Research conferences; services/career (education) department; scientific publications, including the BULLETIN; and science products marketing, as well as AAPG Datapages. □

Libya

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NOVEMBER 2004

American Association of Petroleum Geologists (AAPG) Strategic Plan

(Revised: April 2004)

Overview

The American Association of Petroleum Geologists (AAPG) has begun a process that will assist the Association in creating clarity and focus on how it should invest its valuable resources on the identified wants, preferences and needs of its members and other stakeholder groups. As part of this effort, the AAPG has begun a strategic planning and thinking project that will lead to growth for the organization. This plan facilitates (a) AAPG's identification of the future needs of members and other identified stakeholders and (b) AAPG's options for satisfying those needs. The planning process marks a significant juncture in the organization's history and the results of this plan will initiate choices that the Association will make for future success.

Strategic Planning Steps

Step 1 – Initial Planning by AAPG Advisory Council

On August 22, 2003, the AAPG Advisory Council began the strategic planning and thinking process with a discussion about current conditions and future assumptions regarding their profession. This information was used to form an initial set of options for defining the organization's core ideology and envisioned future. The framework used for this initial discussion and the entire planning process is a model of strategic judgments organized into four time-related horizons outlined below.

Step 2 – Test Initial Planning Elements

Following the initial strategic planning meeting, qualitative research in the form of telephone interviews was conducted with a selected group of AAPG leaders. The purpose of the qualitative research was to test the Advisory Council's initial thinking on their suggested strategic direction for AAPG with other leaders both past and present.

Step 3 – Program Assessment

The next step of AAPG's comprehensive strategic planning and thinking process was to assess the organization's current portfolio of programs and services to determine their fit with the Association's strategic direction. The assessment was conducted by a team of AAPG senior staff and volunteer leaders assisted by an outside consultant. The tool used to assess each program and service was introduced by the consultant and is currently used by hundreds of other associations.

Step 4 – Identification of Strategies

The final report generated from the program assessment exercise assisted the AAPG Advisory Council in formulating strategies. Strategies are the action statements articulating how the Association will implement its strategic plan.

On February 6, 2004, the Advisory Council continued its discussion of the strategic plan. At this meeting the council used the results of the qualitative interviews as well as the Program Assessment to refine the existing strategic planning elements and to create an initial set of strategies.

Step 5 – Testing of Strategic Plan with Larger Leadership Group

On February 7, 2004, the completed draft strategic plan was offered to a larger group of association leaders to comment on at their Leadership Conference. Session participants were offered opportunities to discuss the draft strategic plan in small groups. Their feedback was tabulated and provided to the AAPG Advisory Council for their review and consideration.

Step 6 – Testing of Strategic Plan with

AAPG Strategic Plan Offered For Members' Response

A process that began in August 2003 has produced a comprehensive strategic plan for AAPG. The complete strategic plan can be viewed on these pages.

With results of an all-member survey in hand (June 2003 EXPLORER), then-president Steve Sonnenberg and the Advisory Council, chaired by past president Dan Smith, convened meetings and held many reviews of the plan with both members and staff. The plan also was the focus of the annual Leadership Conference meeting held in February.

At various steps during the process, each program within AAPG was

evaluated in the context of the current business climate and members' expressed wants and needs.

As AAPG Executive Director Rick Fritz wrote in a previous Director's Corner, "The new strategic plan is the most comprehensive long-range business plan ever developed by AAPG. It was developed with such broad member input, it is truly a 'member's plan.'"

The Executive Committee is now presenting the final version of the plan to the membership for your review.

Your comments are invited. Please direct your comments to Rick Fritz electronically at rfritz@aapg.org, or at AAPG, P.O. Box 979, Tulsa, Okla. 74101.

General Membership

Prior to the Advisory Council's next meeting, a survey was developed and made available on AAPG's Web site for member participation and response. AAPG members were notified by email that the survey was available. The survey results represented 1,016 member responses. This feedback was used to finalize the draft strategic plan to be reviewed and refined at the Advisory Council's next meeting.

Step 7 – Final Completion of Strategic Plan

On April 17, 2004, the AAPG Advisory Council met together to consider the suggested changes recommended by participants of the Leadership Conference and to consider the results of a quantitative survey that was available on AAPG's Web site for members to complete. At the completion of the meeting, the Advisory Council finished the strategic plan and discussed a communications strategy and next steps.

Step 8 – Implementation and Execution

Association staff is responsible for creating the operational plans to execute the strategic plan. Volunteer leaders articulate direction through strategic planning and staff identifies the resources and how the strategic plan will be implemented. With the assistance of an outside consultant, staff will begin the ongoing process of creating action plans and the operational structure and processes to support the strategic plan.

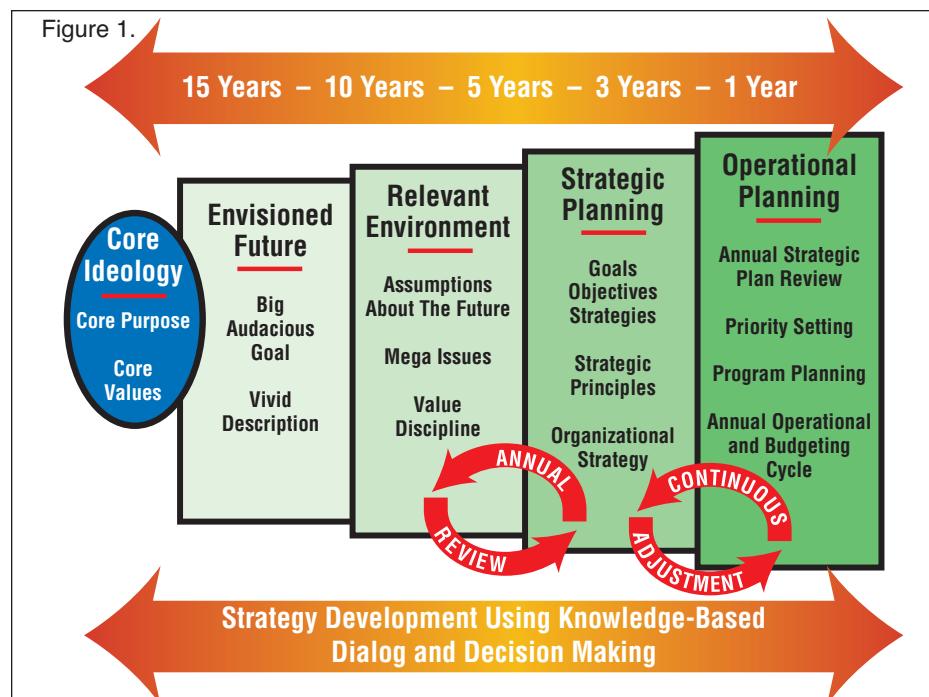
Outline of Strategic Planning Process

Using the Four Planning Horizon's model (figure 1) as a framework and group dialogue and deliberation as the information source, the session participants created the following:

- A set of assumptions about the future of the petroleum industry and the professionals that work within it.
- A list of relevant factors in the long-range horizon (10-15 years into the future), core purpose, core values, Big Audacious Goal (B.A.G.) and a vivid description of future success.
- Six goal areas that identify where the AAPG will direct its energy in the next one - 10 year planning horizon. The goal areas focus on outcomes beneficial to AAPG and its members.
- A set of strategic objectives (3-5 years) in each goal area setting measurable direction for the organization to head in to achieve its goals.
- A set of strategies that identify the actions the organization will undertake in the next 1-3 years in order to achieve each goal area.

An Ongoing Process of Thinking Strategically

AAPG's leadership views the process of strategic planning as an ongoing process within AAPG. This is not a "strategic planning project" that is completed. Adoption of a plan is an affirmation of the general intent and direction



articulated by the vision, goals and strategic objectives.

Progress toward achieving plan strategic objectives will be assessed annually, and the plan will be updated based on achievement and changes in the needs of the stakeholders served.

Assumptions About the Relevant Future

In order to make progress against the 10-15 year Envisioned Future; an organization must constantly anticipate the strategic factors likely to affect its ability to succeed, and to assess the implications of those factors. This process of building foresight about the future assists AAPG in constantly recalibrating its view of the relevant future, a basis upon which to update the strategic plan on an annual basis. The outcome-oriented short-term goals are based on the long-range assumptions identified below. Annual review of the assumptions and their ongoing relation to the short-term goals is an appropriate method of determining and ensuring the ongoing relevance of the strategic plan.

Assumptions

Demographics

1. The industry's professional community will increasingly become global.
2. Career opportunities will continue to be volatile and will affect student interest in entering the profession.
3. The profession's North American work force will increasingly age.
4. Company policies will continue to change in order to encourage women to enter and remain in the profession.
5. Ethnic diversity of the membership will increase internationally as AAPG becomes more global in its outreach.
6. The work force will increasingly be self-employed and will rely on outside resources that are easy and inexpensive to obtain.
7. Younger people are less likely to support association membership and involvement.
8. People will change careers more often.
9. Internal company training will continue to decrease.

Legislation/Regulation

1. Sectors of the U.S. government will continue to view the industry negatively.
2. Increasingly, countries will have a unique and different relationship with the industry.
3. Governments will continue to be "crisis motivated" in reacting to the industry.
4. Special interest groups will increasingly provide one-sided advice to governments on the industry and the information will be interpreted as scientific fact.
5. Geologists will continue to be a small voting block.

Global Business/Economic Climate

1. Oil prices will remain somewhat predictable and within a stable range.
2. Gas prices will continue to be influenced by regional differences.
3. Consuming areas will increasingly diversify their gas sources.
4. There will be increased international partnering by oil and gas companies.
5. There will be increased opportunity for independent oil and gas companies outside of N. America and Europe.
6. Instability in the Middle East will continue to affect oil prices and may affect gas prices.
7. World economies will improve.
8. Industry research will continue to decline due to company pressures from Wall Street to make profits.
9. Most research will be conducted by universities, government labs, NGOs, and

service companies.

10. Small and midsize companies will continue to adopt exit strategies reducing exploration drilling primarily in the United States and Canada.

11. Water resources availability will increasingly become an issue.

12. Management will continue to respond to the volatility of the market by making short-term operational decisions.

Science/Technology

1. There will be an increasing disconnect between classic geological education and training and new technologies.

2. The industry will continue to be influenced by cross-over technology coming from other industries.

3. New technologies will continue to come from small entrepreneurial companies who now have the tools to compete with larger companies.

4. The speed in which technology becomes outdated will increase.

5. Drug technology will continue to extend life.

6. As resources for research decline, companies will partner with academia for their research needs.

7. The resources available for research will be different in different parts of the world.

8. As technology grows, the understanding and application of the fundamentals of the profession will decline.

Social Values/Politics

1. There will be an increase in environmental awareness and responsibility.

2. Oil and gas will continue to be important energy resources for productive economies worldwide.

3. There will be increased consumption of oil and gas resources in developing countries.

4. International political instability and terrorism will continue.

5. Political issues will become more global.

6. Oil prices will continue to affect world economics.

7. Climate change will necessitate changes in the energy industry.

8. Government regulation of the energy industry will increase worldwide.

9. Governments will look to the energy industry for increased revenue.

10. Globalization of membership will lead to a relative decrease in volunteer time and money.

11. In the United States, the concentration of petroleum geoscientists into the Houston area will continue.

10-15 Year Planning Horizon

Core Ideology & Envisioned Future

Core ideology describes an association's consistent identity that transcends all changes related to its relevant environment. It consists of two elements: core purpose – the association's reason for being, and core values – essential and enduring principles that guide an association. Envisioned future conveys a concrete yet unrealized vision for the association. It consists of a big audacious goal – a clear and compelling catalyst that serves as a focal point for effort – and a vivid description – vibrant and engaging descriptions of what it will be like to achieve the big audacious goal.

Core Ideology

Core Purpose:

To advance the science and profession of energy-related geosciences worldwide.

Core Values:

- Scientific excellence.
- Professionalism.
- Ethics.
- High quality membership services.
- Recognizes responsibility to society.
- Professional development.
- Open communication.

- Diversity.
- Recognition of scientific and professional achievement.

Envisioned Future

Big Audacious Goal:

To be indispensable to all professionals in the energy-related geosciences worldwide.

A Vivid Description of the Desired Future:

External Environment

- Society recognizes geoscience professionals as contributing to the availability of reasonably priced and environmentally responsible energy.
- The petroleum industry is publicly perceived as a protector of a healthy and sustainable environment.

- The standard of living worldwide is enhanced as a result of AAPG's work.
- Employers recognize the value of geoscience professionals to their success.

AAPG Members

- Members are aware of and depend on AAPG for their career tools.
- AAPG members are preferred by employers.
- AAPG members are the resource for the public, governments and international agencies:
 - For their understanding of energy related resources.
 - For unbiased and factual geoscience information.
 - For finding and producing efficient and environmentally sustainable energy.
- AAPG members are professional and ethical and are accepted by courts, states and countries as expert witnesses.

The Association

- AAPG is recognized for publishing and teaching at the cutting-edge of geosciences.
- Every energy related geoscientist belongs to AAPG.
- AAPG develops, supports and promotes environmentally sound practices within the profession.
- AAPG is recognized for promoting environmentally friendly production of hydrocarbons worldwide.
- AAPG has the best student placement programs within the profession.
- AAPG offers high quality professional development and continuous education.
- AAPG is the pre-eminent source of information on the energy industry.
- AAPG is the preferred place to publish for energy-related geoscience.
- AAPG offers the best career long benefits package.
- Other organizations recognize the benefits of merging or partnering with AAPG.

1-10 Year Planning Horizon

Outcome-Oriented Goals, Strategic Objectives and Strategies ~

1-10 Year Planning Horizon

Outcome-Oriented Goals, Strategic Objectives and Strategies

The following thinking represents goal areas for the next one to 10 years. They are areas in which AAPG will explicitly state the conditions or attributes it wants to achieve. These outcome statements define "what will constitute future success." The achievement of each goal will move the organization toward realization of its vision. The goal areas are not necessarily in priority order.

Strategic Objectives and Strategies provide direction and actions on how the Association will accomplish its articulated goals. Strategic Objectives are considered in the 3-5 year planning horizon, while Strategies are considered within the 1-3 year planning horizon. The Strategies are listed under the Strategic Objective they support. Strategies are reviewed annually by the AAPG leadership.

The Strategies are prioritized to reflect the urgency of accomplishing them. Each strategy is labeled with a (H) high, (M) medium or (L) low

rating. High Strategies are to be accomplished within the next operational year, medium Strategies are to be accomplished within the next operational year if resources permit, and low Strategies are to be accomplished within the following operational year. All Strategies included in the Strategic Plan should be considered accomplishable at some point in the future.

Goal Areas

Goal Area: Advance the Science

Foster, facilitate and disseminate knowledge in leading-edge research and its practical application in the energy-related geosciences worldwide.

Strategic Objectives:

1. Encourage geoscience research both leading-edge and applied.
 - a. *Expand role of E&P Notes, Search and Discovery and Explorer to publish research results. (H)*
 - b. *Increase effectiveness of the AAPG Research Committee. (H)*
 - c. *Investigate the development of a separate publication like SEG's Leading Edge. (H)*
 - d. *Promote the value of publishing research to companies highlighting E&P Notes, etc. (M/L)*
 - e. *Create a plan to increase grants-in-aid to students and research institutions to fund and publish research. (M)*
 - f. *Identify high priority areas of cooperative research with selected institutions. (M)*
 - g. *Develop alternate distribution channels for research results such as web-based and CD ROM publications. (M/L)*
 - h. *Create an AAPG-sponsored recognition program to recognize companies for participating. (L)*

2. Increase corporate support for the publishing of employee and company generated research.

3. Increase cooperative research efforts with AGI and other energy related societies and government institutions.

- a. *Aggressively pursue sources of additional money for research projects. (M)*
- b. *Create and maintain a program to offer immediate publishing opportunities (12 month maximum). (L)*

Goal Area: Continuous Professional Development

To be the educational provider of choice for members worldwide.

Strategic Objectives:

1. Increase timeliness and focus of publications.
 - a. *Create a strategic plan for publications (Bulletin and special publications). (H)*
 - b. *Aggressively target editors and authors for specific themes. (H)*
 - c. *Review role of Publications Committee and Associate editors. (H)*
 - d. *Continue efforts to decrease the production time for publications. (H)*
 - e. *Shorten publications and papers for the purpose of faster editing and reading. (H)*
 - f. *Create more thematic issues of the Bulletin. (H/M)*
 - g. *Make special publications more accessible (Datapages, GSW and others to increase circulation). (M)*
 - h. *Consider devoting an annual volume of the Bulletin to a geographic boundary. (M)*
2. Increase the accessibility of AAPG educational opportunities.
 - a. *Create opportunities to communicate the value of educational programs to company management using testimonials and personal visits. (H)*
 - b. *Conduct more Education Forums in more places. (H)*
 - c. *Create a curriculum of courses in conjunction with global partners specifically for NOC's and large independents. (H)*
 - d. *Input additional posters and papers onto Search and Discovery. (M)*
 - e. *Create materials for one-day courses with local/affiliates. (M)*
 - f. *Evaluate distance learning programs. (M)*
3. Facilitate opportunities for member networking.
 - a. *Expand regional meeting opportunities. (H)*
 - b. *Conduct a membership recruitment event annually at affiliated societies. (M)*

3. Increase the exposure of the Distinguished Lecture Series and Visiting Geologist Program worldwide.

- a. *OTC Funding – use budget surpluses to establish new DL's internationally. (H)*
- b. *Raise additional money for Distinguished Lecture Series. (M)*
- c. *Co-venture DLS and VGP with international affiliates. (M)*
- d. *Create regional AAPG offices – better prepared to run tours on different continents. (M/L)*
- e. *Consider Taping DLs and offering to an expanded audience. (L)*

4. Increase corporate support for member continuing education.

- a. *Increase the role of the existing corporate liaison to include promotion of continuing education programs. (M)*

Goal Area: Public Awareness and Understanding

Increase the public's awareness and understanding of the value that energy related geoscience professionals contribute to society.

Strategic Objectives:

1. Increase coordination and unity of public messages and communication channels within AAPG.
 - a. *Determine and implement optimal structures within AAPG for formulating and projecting messages. (H)*
 - b. *Increase coordination of public messages among geoscience organizations.*
 - c. *Contact all energy-related organizations and determine existing outreach programs. (H)*
 - d. *Identify common messages between organizations. (H)*
2. Increase outreach programs to increase awareness and understanding of the geoscience professions.
 - a. *Coordinate with other industry organizations public outreach messages and opportunities. (H)*
 - b. *Create a unified campaign to deliver information to the public. (M)*

Goal Area: Membership and Member Services

Attract and retain members worldwide by providing programs and services that are essential to professional career development.

Strategic Objectives:

1. Increase member participation in existing programs and services.
 - a. *Highlight the value of an association program or service each month in Explorer. (H)*
2. Increase the Association's understanding of the value of existing programs and services.
 - a. *Conduct program assessment annually and include membership trends in the review. (H)*
 - b. *Create or use an existing committee to provide ongoing oversight to assessment process. (H)*
3. Increase the value of the publications to members.
 - a. *Require Hedberg conveners to provide a summary article for publication and encourage speakers to provide expanded abstracts for publication. (H)*
 - b. *Investigate remote publishing sites and compare with sister societies' methodology. (H)*
 - c. *Continue to reduce production publication time for Bulletin. (M)*
 - d. *Solicit Review articles for the Bulletin and the DEG environmental publications. (M)*
 - e. *Review value of entire publications' program and make recommendations for changes. (M)*
4. Facilitate opportunities for member networking.
 - a. *Expand regional meeting opportunities. (H)*
 - b. *Conduct a membership recruitment event annually at affiliated societies. (M)*

See **Planning**, next page

Planning from previous page

5. Increase value of web-based programs and services to members.
 - a. *Expand digital access of publications.* (M)
6. Increase retention of young professionals and students.
 - a. *Develop a plan to increase the number of affiliated society members to become AAPG members.* (H)
 - b. *Develop and implement a plan to increase the number of student members transitioning to active membership.* (M)
 - c. *Develop a plan to increase the number of associate members.* (M)

Goal Area: Financial Stability

Maintain an annual balanced budget (+/- 3 percent).

Strategic Objectives:

1. Increase the Foundation's fundraising program.
 - a. *Develop a fundraising program to double the Foundation portfolio by 2008.* (H)
2. Increase the diversity of AAPG's income stream.
 - a. *Conduct program assessment annually and develop multiple profit centers and eliminate non-essential programs.* (H)
 - b. *Research other associations for income diversification opportunities.* (M)
3. Increase revenue from APPEX, international and annual meetings and publications.
 - a. *Improve publication selection process using a value vs. income generation approach.* (H)
 - b. *Develop and implement a plan to offer*

continuing education units at annual meeting. (H)

c. *Identify and implement opportunities to increase revenue from meetings and expo by 10 percent.* (L)

4. Increase training partnerships with companies, NOCs, and government agencies.
 - a. *Continue to partner with sister societies in offering training courses.* (H)
 - b. *Continue to develop training partners program.* (H)
5. Reduce expenses where appropriate. Increase profitability of educational programs.
6. Increase sustainability of Research Conferences.
7. Increase profitability of Datapages/GIS.

Goal Area: Worldwide Presence

Evolve into a global association strategically, responsibly and to the benefit of the membership.

Strategic Objectives:

1. Increase member's knowledge and understanding of globalization.
 - a. *Conduct rigorous analysis of membership dynamics both current and future.* (H)
2. Increase member support for the advantages of a global organization.
 - a. *Gather information on associations that have transitioned to globalization.* (H)
 - b. *Gather information on worldwide economic development, petroleum industry activities and geoscience educational trends.* (L)
3. Sustain value and participation in all sections and regions.
 - a. *Analyze the structural, financial and organizational changes and impact to becoming a more global organization.* (L)

5-10 Year Planning Horizon

Mega Issues

5-10 Year Planning Horizon -Mega Issues

Mega issues are issues of strategic importance, which represent choices the organization will need to make in defining the ultimate direction of its long-range plan. These issues represent potential impediments to achievement of the Envisioned Future, and form a basis for dialogue about the choices facing the organization. These questions can serve as an ongoing "menu" of strategic issues that, using a knowledge-based approach in gathering insights relative to AAPG's strategic position and directional choices for each of the issues, can be used by the board to create regular opportunities for strategic dialogue about the issues facing the industry.

Mega-Issue Questions

1. How does AAPG engage early career professionals so that they retain their membership?
2. How does AAPG get more people to join our profession?
3. Should the AAPG consider merging with other sister societies?
4. How will this organization balance the declining interest in petroleum geosciences of North America students with the increasing global demand for energy?
5. How will AAPG address the increasing interest in alternative energy technologies?
6. How can AAPG be more effective in improving the involvement of underrepresented groups in North America in the geoscience profession?
7. How can AAPG create an endowment?
8. How can AAPG assist in changing the public's perception of the "oil industry"?
9. How can AAPG use our divisions more effectively?
10. How can AAPG increase

visibility/recognition at geoscience universities worldwide?

11. How can AAPG truly become a global geoscience organization?
12. How does AAPG engage and retain new professionals?

13. How does AAPG retain semi-retired professionals in our association?

14. How should AAPG better disseminate energy-related research and knowledge to our members and the public?

15. How can AAPG encourage increased membership participation in the work of the Association?

16. How does AAPG bring the issues of sustainable resource exploration and development into K-12 and undergraduate and graduate classrooms and research?

17. What can AAPG do to bring better science to federal environmental and land management sciences so as to facilitate appropriate energy development?

18. What can AAPG do to lead all of the profession to a coordinated and funded public outreach program?

19. How does AAPG maximize the availability of information and data to members in a timely and cost effective manner?

20. How can AAPG assist members with personal career development throughout the career spectrum?

21. How does AAPG operate to maintain a balanced budget and create a small surplus?

22. Is Tulsa the best place for AAPG headquarters?

23. How does AAPG get management "buy-in" to the Association so as to allow geoscientists to publish their work?

24. How can research be rekindled?

25. How can AAPG leadership better represent the future organization?

26. How can AAPG influence more earth science students to enter the petroleum industry?

27. How does AAPG address the instability in the industry?

28. How can AAPG positively affect employment opportunities for its members? □



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Kenya

Extensive seismic was recently acquired offshore Lamu Basin. The interpretation of these data has encouraged further work and plans are underway to acquire 3-D data in selected areas in preparation for drilling. There is renewed focus on the onshore basins of Anza, Mandera and the Tertiary Rift. Several international oil companies have expressed interest in the open blocks.

Uganda

The Uganda Turaco-2 well south of Lake Albert discovered hydrocarbons at two levels. Turaco-3 is currently being drilled to test the zones and establish the commerciality of the Turaco prospect. This is the first hydrocarbon discovery in the East African Rift and several companies are actively pursuing this new exploration opportunity. Uganda has licensed 3 blocks in the East African Rift and seismic exploration is ongoing in preparation for further drilling.

Tanzania

The Songo Songo gas to electricity project was commissioned in October 2004. This is the first commercial use of natural gas in East Africa. At the same time Tanzania is seeing renewed exploration interest. Recent drilling at Nyuni confirmed the presence of a petroleum system in that area. Three new production sharing agreements were recently signed for the Mnazi Bay Gas Development, Rufiji/Mafia shallow water and Mafia deep offshore Block 5. The deep water play is being looked at by several major companies.

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Contact

Ernest N.T. Rubondo, Conference Secretariat

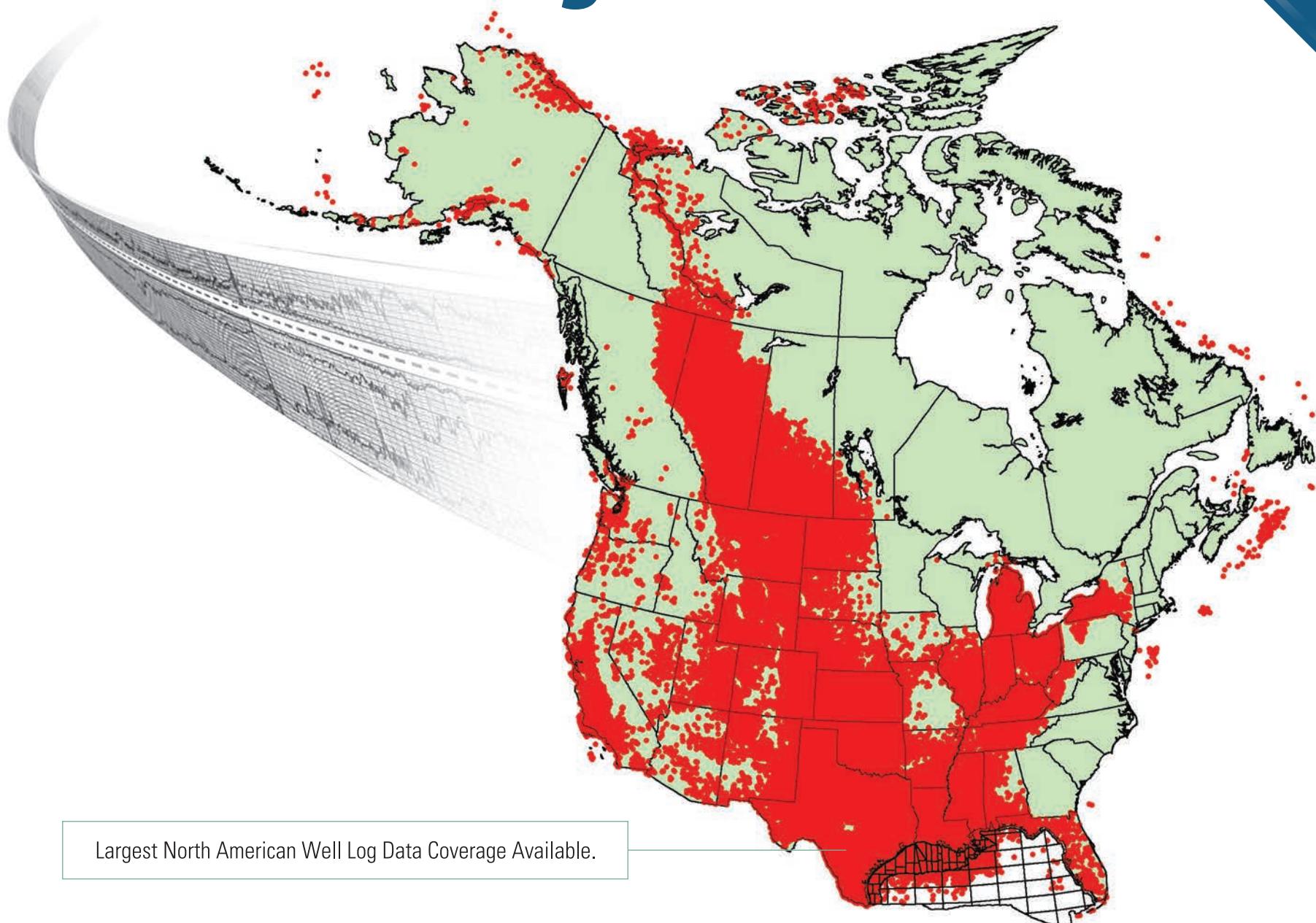
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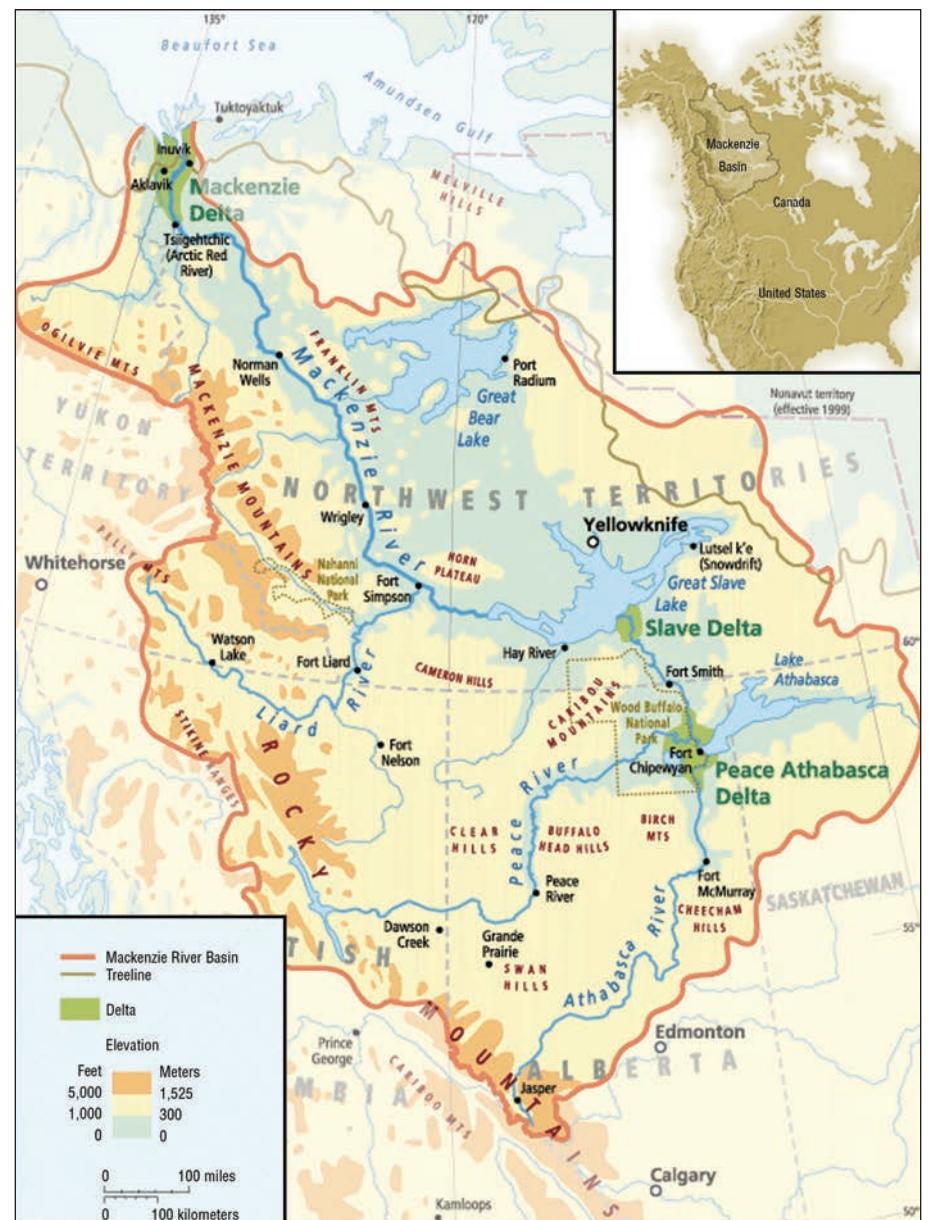
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Graphic courtesy of Devon Canada Corp.

Arctic Basin Gets Re-examination

By SUSAN EATON

EXPLORER Correspondent

Every interpreter has experienced the benefits of "shelving" his seismic interpretation for a couple of weeks – or even a few months – and revisiting it with fresh eyes.

Almost 20 years have passed, however, since most interpreters shelved their seismic interpretations of the Mackenzie Delta and the adjacent Beaufort Sea.

So what's new?

Recent breakthroughs in geological understanding – based upon new geochemistry and biostratigraphy analyses, plus the acquisition of 3-D seismic data – have transformed Canada's Arctic region from a source-limited basin to one that is rich in mature source rock.

Proximity to newly defined source rock beds has opened up a host of new play concepts.

Opening the Window

Situated due east of Alaska's North Slope, the Mackenzie River forms the second largest drainage system in North America. When the Mackenzie River meets the shallow Beaufort Sea, it fans out to form the Mackenzie Delta, an area of 13,500 square kilometers – an area where the distinctions between land and water blur.

Underlying this modern delta complex is the Beaufort Mackenzie Basin (BMB), which consists of 12 to 16 kilometers of Tertiary age progradational sediments.

The Geological Survey of Canada (GSC), in conjunction with oil and gas industry partners, has undertaken a reinterpretation of well data in the BMB. Using a multitude of diagnostic tools, the GSC is performing organic geochemistry and petrology studies, including:

- ✓ Vitrinite reflectance.
- ✓ RockEval (Total Organic Carbon).
- ✓ Biostratigraphy.
- ✓ Foraminifera colouration indexes.
- ✓ Apatite fission track analyses.
- ✓ Fluid inclusion homogenization temperatures.

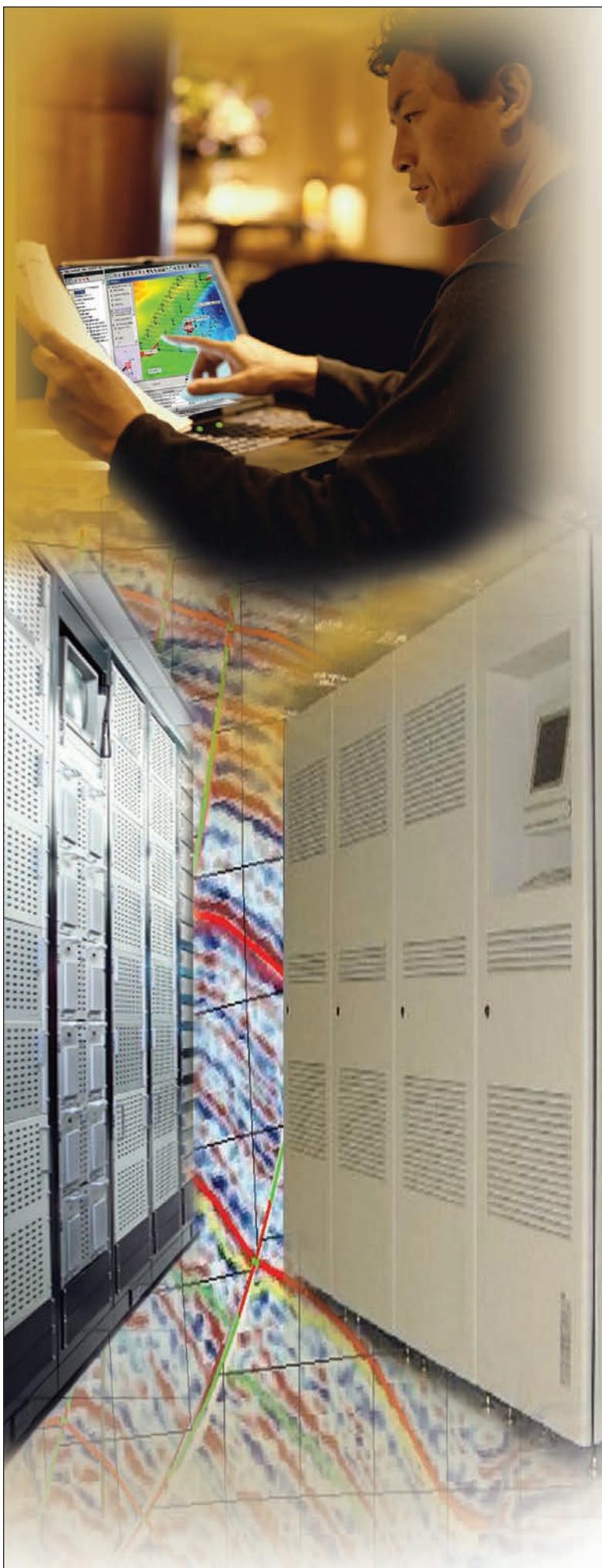
Historically, it was believed that source rock was limited to the Tertiary age Richards Formation, but recent work indicates that three other Tertiary age formations have been expelling hydrocarbons into the basin since mid-Tertiary time: the Aklak, Taglu and Kugmallit formations.

"In order to attract industry, we had to have some proprietary time frame," said AAPG member Dale Issler, a GSC research scientist and project leader of the GSC-industry consortium. "Our project is outcomes driven, and we're strongly aligned to industry's needs."

The selling point for the consortium, Issler said, was a password-protected, Web-accessible database with real-time delivery for the exploration decision-making process. The consortium's work is held for two years before being released in open files.

"In many cases, the oil window is below drill depths in the offshore, so you

See **Mackenzie**, page 29



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GEOPHYSICAL CORNER

Track Geology in Greater Detail

(The Geophysical Corner is a regular column in the EXPLORER, edited by Dallas consulting reservoir geophysicist Alistair R. Brown. This month's column deals with "Horizon Tracking on Workstations.")

By LES DENHAM
and DAVE AGARWAL

Before seismic interpretation workstations, interpreters marked paper sections with each horizon, then laboriously read off the time of the reflection – usually to no better than ± 5 ms – and at intervals of perhaps every tenth trace.

Computers, however, remember exactly where the interpreter picks – and often pick more accurately.

Autotracking on lines in either 2-D or 3-D data, and through a volume in 3-D, picks with precision on every trace, so machine horizon tracking today can reveal geology in greater detail than manual interpretation can ever achieve.

* * *

The first decision is what seismic event to pick.

Figure 1 shows a geological marker in two wells; a continuous reflection approximately ties the two markers, but in one well the marker is on a positive-to-negative zero crossing, while it is close to a peak in the second well. A synthetic seismogram might help, but that is beyond the scope of this article. Often the interpreter can simply decide on a continuous event to pick close to the marker to be mapped.

Most reflections are composite; the perfect phase point to pick is uncertain. All interpretation systems can "snap" to, or follow, maximum negative, maximum positive or zero crossings (going negative with increasing time, and going positive).

In Figure 1 the reflection is picked on the peak of an event, and on the positive-to-negative zero crossing. Each horizon is an automatic track along a line from a single seed point on one trace.

Any interpretation system has parameters that can be set to specify the way in which the correlation from trace to trace is done. These may include:

- ✓ Maximum time (or depth) change from one trace to the next.

- ✓ Whether to pick the largest event within this limit, or the closest.

- ✓ Maximum amplitude change from one trace to the next.

- ✓ Whether to follow an event, or to cross-correlate.

If the parameters are too restrictive, the tracking leaves gaps. If the parameters are too loose, it makes mistakes.

* * *

For 3-D data, automatic tracking from one trace to the next can be extended throughout the data volume. Figure 2 shows the result of automatic picking of the peak. Where the event mapped becomes less obvious, the automatic picking breaks down.

The conventional seismic data may not give the most accurate picture of geological structure when you pick on a constant phase point (peak, trough or zero crossing), especially if the reflection

is weak. Seismic attributes allow removing the amplitude information to make all reflections the same. The instantaneous phase attribute does this, but is discontinuous where the phase passes 180 degrees (it jumps to -180 degrees).

A more elegant attribute is cosine of instantaneous phase, which is -1.0 for both 180 degrees and -180 degrees (figure 3). Notice there are differences of up to 1.1 meters (1.5 meters, or five feet – a significant depth error in many prospects) between the two tracked horizons – green (picked on conventional data) and red (picked on cosine-of-phase).

Workstations interpolate between samples using a spline function, so the peak or zero-crossing is picked with a much greater precision than the sample interval (two meters in this data).

This difference between the two horizons is real. Automatic tracking is at least an order of magnitude more accurate than manual picking; such a small time difference would never be detected with manual timing.

Along with the structure map, we can get a reflection amplitude map, either trace amplitude or the reflection magnitude. Reflection amplitude measurements are impractical with manual picking.

With the cosine-of-phase data volume, details differ (compare figure 4 and figure 2). Either of these maps show an excellent picture of the structure in most places, and we have achieved it by manually identifying the event on one trace only.

The results vary with which point on the reflection is used for picking. In this example, automatic picking fails over a larger area if the positive-to-negative zero crossing is used on the conventional data (figure 5, page 28). There are fewer gaps with cosine-of-phase (figure 6, page 28), but obvious errors in several areas.

* * *

For 3-D, an alternative to automatic tracking is to pick manually a subset of the data, then interpolate. This is particularly attractive if automatic tracking is unreliable because the event is weak, or if the horizon is extensively faulted.

In this case the steps to producing both a structure map and an amplitude map are:

1. Manually pick a subset of the data, such as every tenth line and crossline, by displaying the lines on the screen and picking exactly where you want the horizon, using automatic tracking along the line, or point-to-point interpretation.

2. Interpolate between the picked lines.

3. Snap to a peak, trough or zero crossing.

4. Smooth if needed.

5. Map and extract amplitudes.

This alternative technique can be used over the whole of a 3-D survey, or only over parts where automatic picking is unreliable, and the results merged with automatic picking in areas where that technique is reliable.

See **GeoCorner**, page 28

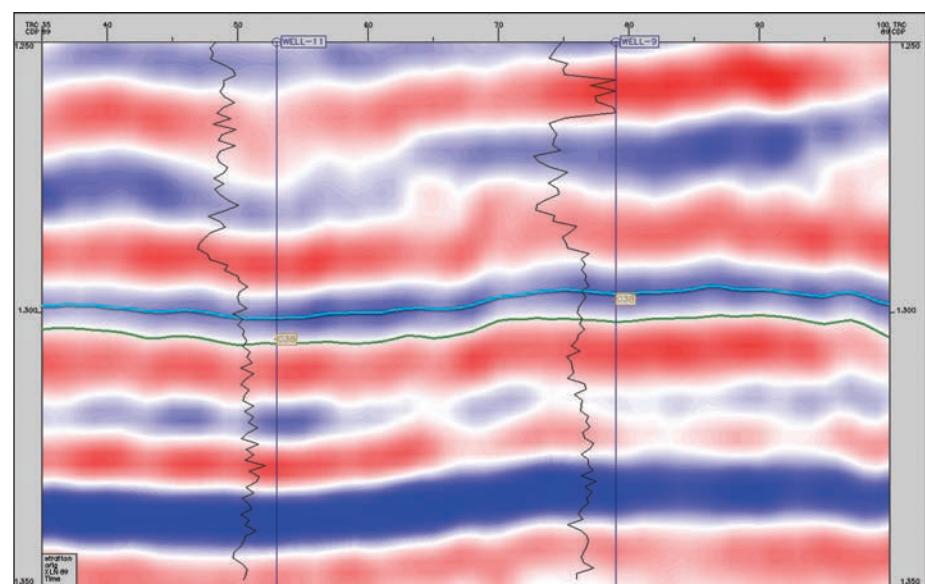


Figure 1 – Tracking on the positive-to-negative zero crossing (dark green) as well as on the peak (cyan).

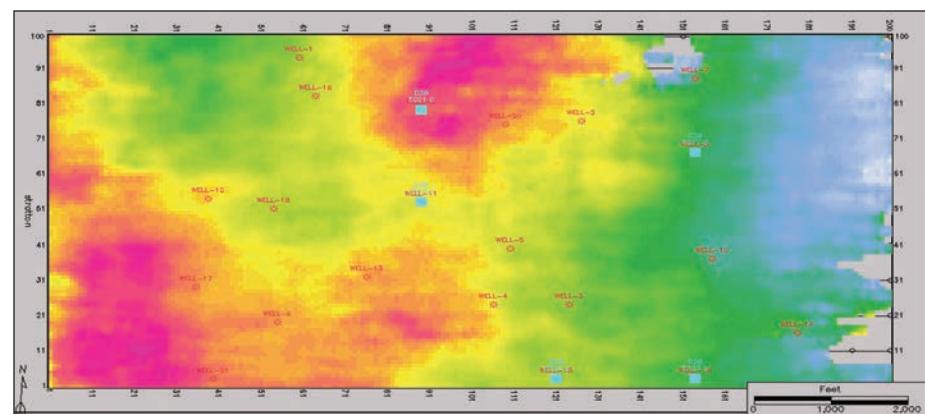


Figure 2 – Structure map from automatic tracking of the peak on the conventional migrated data.

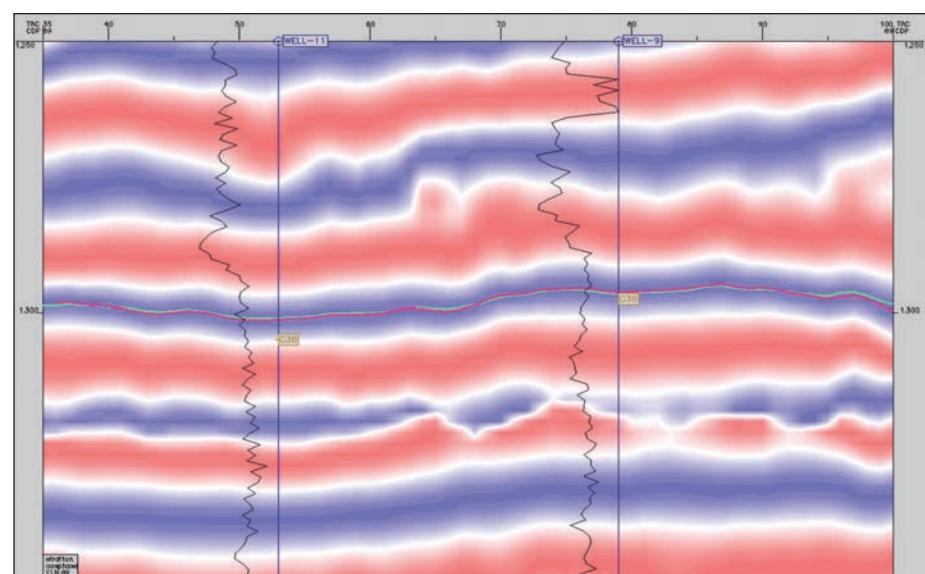


Figure 3 – Cosine of instantaneous phase section. The green pick shows tracking on conventional data, the red pick shows tracking on cosine-of-phase.

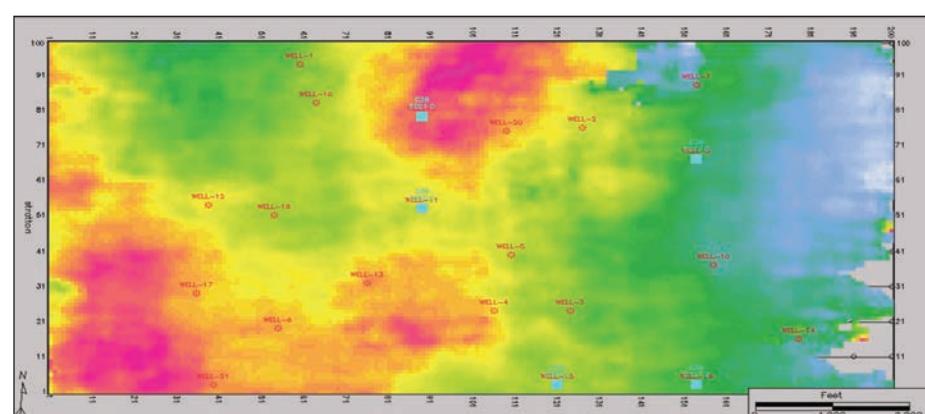


Figure 4 – Structure map from automatic tracking of the peak on cosine-of-phase data. Compare figure 2. Errors and omissions are different.

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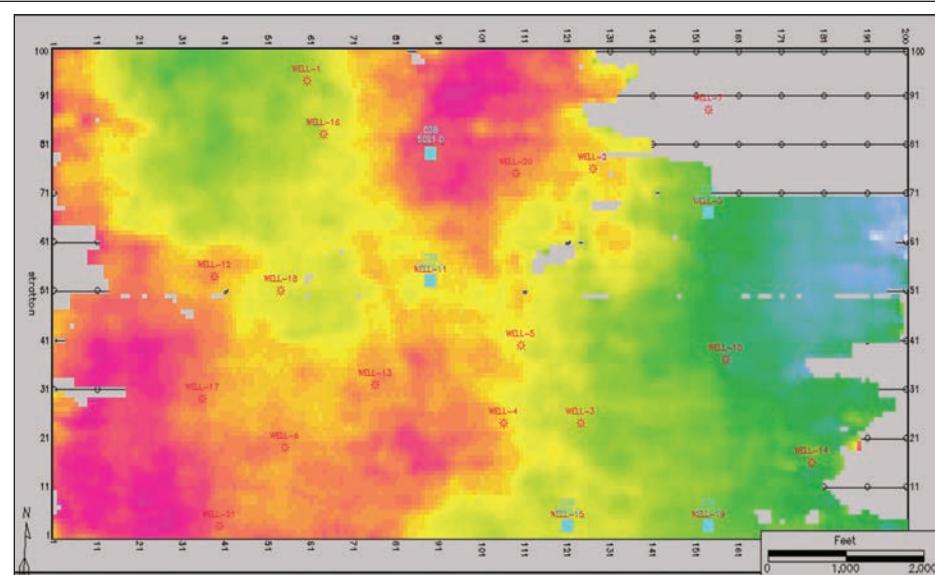


Figure 5 – Structure map from automatic tracking of the positive-to-negative zero crossing on the conventional migrated data.

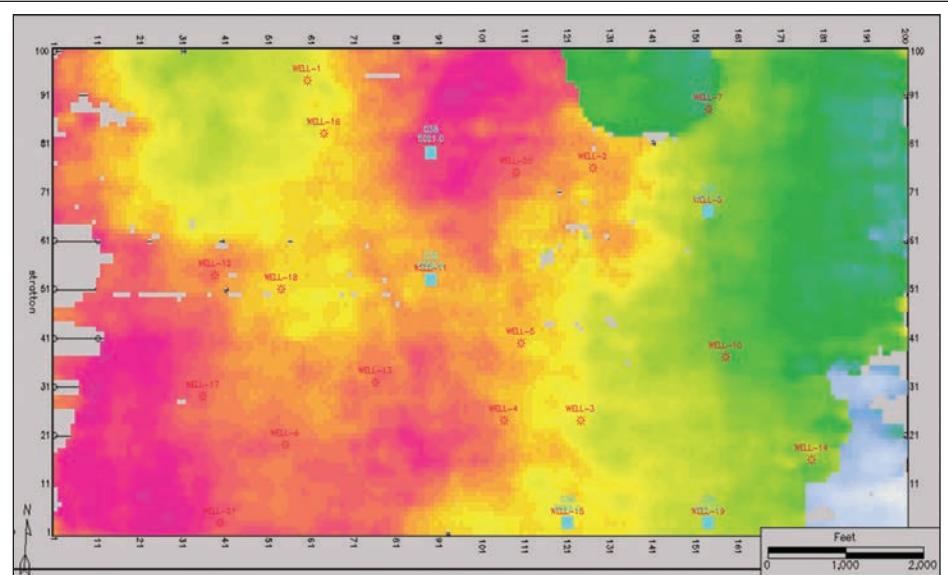
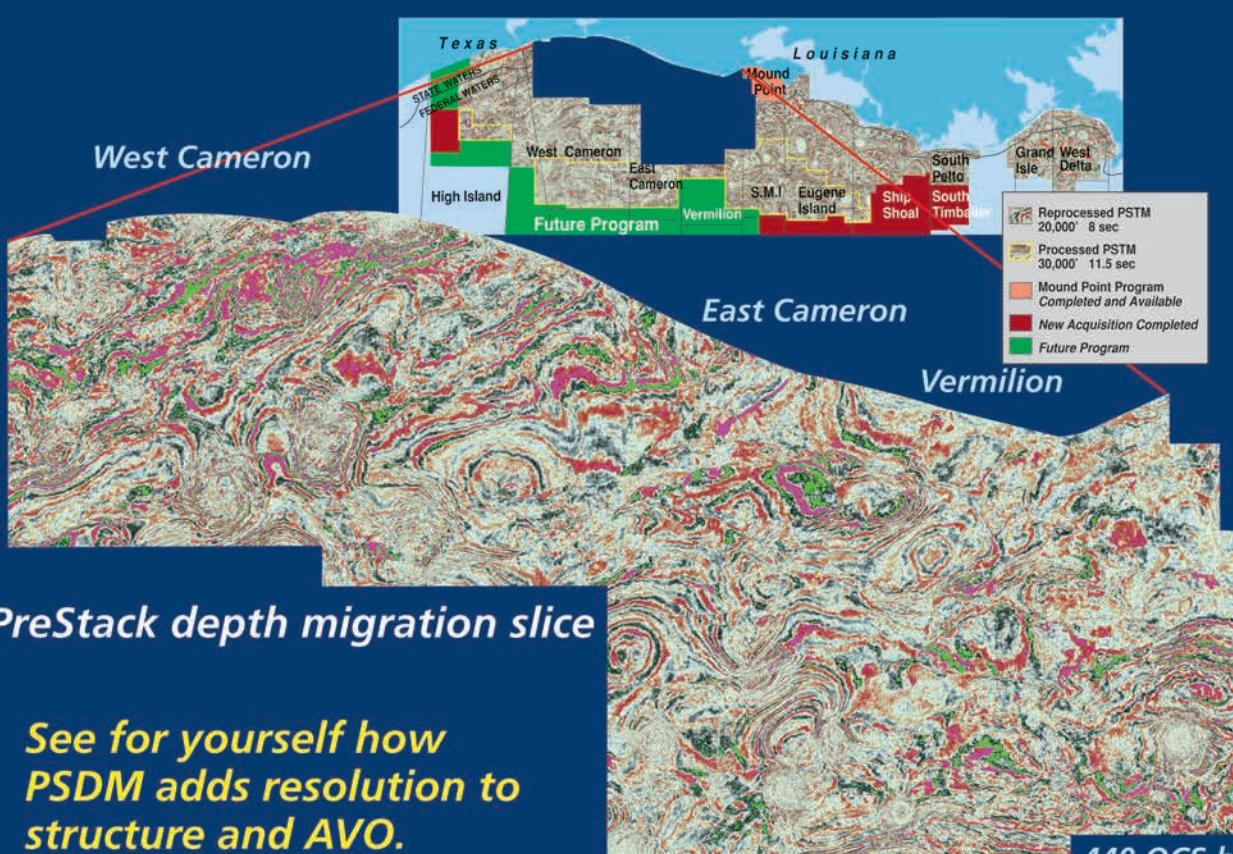


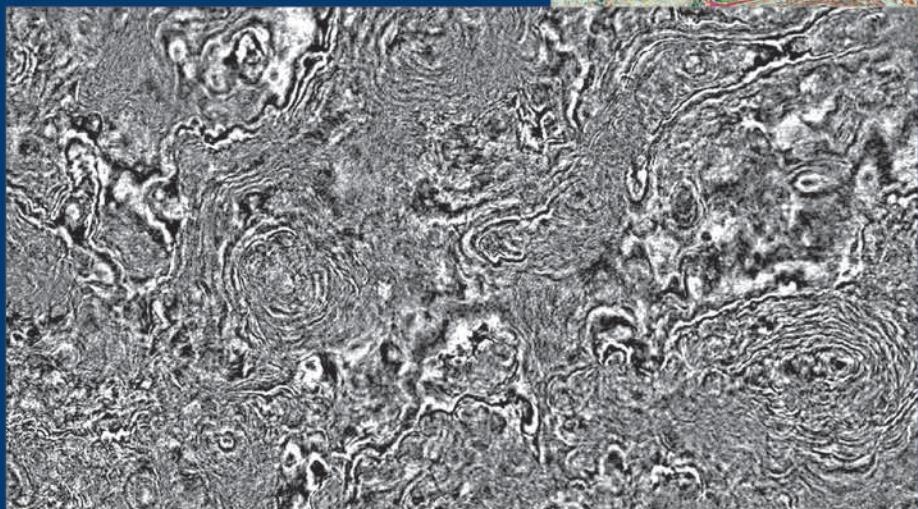
Figure 6 – Structure map from automatic tracking of the positive-to-negative zero crossing on the cosine-of-phase data.

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GeoCorner

from page 26

* * *

Automatic tracking of seismic horizons in good quality data from a few seed points is a powerful tool for rapidly completing interpretation of 3-D seismic data volumes. It reveals geology with much greater precision and detail than manual interpretation can.

However, there are pitfalls in its use; it is less than reliable unless the interpreter understands the geology and restricts the automatic picking by using parameters chosen to minimize mis-picking.

Interpolation is often a good alternative for 3-D if automatic tracking will not work reliably. □

(AAPG members Les Denham and Dave Agarwal are both with Interactive Interpretation and Training in Houston.)

Lamarre Wins RMS Levorsen

Robert A. Lamarre, with Lamarre Geological Enterprises in Denver, has been named the winner of the A.I. Levorsen Award for the best paper at the recent Rocky Mountain Section meeting in Denver.

His paper was "Atlantic Rim Coalbed Methane Play: The Newest Successful CBM Play in the Rockies."

His co-author was Stephen K. Ruhl, of Anadarko Petroleum, The Woodlands, Texas.



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LOOKINGBACK

Discriminating Character

By MARLAN DOWNEY

Perhaps a review – and awareness – of the past may make us better geologists in the future.

* * *

"Genesis of Oligocene Sandstone Reservoir, Seligson Field, Texas," by Robert H. Nanz, was printed in the AAPG BULLETIN, Volume 38, January 1954.

In 1954, Bob Nanz published an

outstanding paper that documented the environment of deposition of a particular Oligocene sandstone, using subsurface data.

Analysis of the well log and core information indicated that the linear Oligocene reservoir:

- ✓ Was deposited on an alluvial flood plain.
- ✓ Had a trend at right angles to the Oligocene marine depositional strike.
- ✓ Was very similar to modern sands within the Texas Rio Grande.

Nanz demonstrated that lenticular alluvial sands could be differentiated from dimensionally similar long, narrow beach sands.

His paper was one of the first to make use of such discriminators as the character of included mud fragments, the vertical variations in grain size, the sorting of the sand grains and the character of the associated shales.

This study provided powerful geologic tools for identifying

sandstone depositional environments and in making directional predictions of sandstone reservoirs.

* * *

Nanz went on to be vice president of Shell's Bellaire Research Laboratory, and it is no coincidence that the laboratory produced such Sidney Powers medalists as Rufus LeBlanc, Bob Sneider, Bert Bally and James Lee Wilson. □

Mackenzie

from page 24

need to rely on thermal modeling to figure out what's going on," Issler said.

According to Issler, the oil window shallows in the onshore regions of the Mackenzie Delta. The existence of five stacked deltaic complexes in the Tertiary, he said, leads to "extensive recycling of sediments, fossils and organic matter."

"Every tool helps when working in a deltaic environment," he said. "There's very little published in the BMB, in terms of thermal history."

New Potential

A lot of the structures that were drilled in the 1970s and 1980s weren't filled to spill point, explained AAPG member Peter Graham, an exploration geologist with Devon Canada, one of the consortium's industry partners.

"Some people attributed this to a poor source rock basin," he said, describing this problem as a historical "fill to spill" issue.

"The primary risk that we now concern ourselves with is seal integrity," he added.

"The majority of the big structures have been drilled already," said AAPG member Chris Bergquist, also an exploration geologist with Devon Canada. "But the 3-D seismic data have basically opened our eyes to the stratigraphic and structural/stratigraphic plays on the flanks of these structures."

"There's a whole new area of potential that was mostly ignored," Bergquist added, "and the new geochemistry work expands the area of potential for hydrocarbon-charged traps."

Devon has identified several new and exciting Tertiary plays in the offshore: multiple unconformity subcrops and channel fills, turbidites (base-of-slope and basin floor fans) and wrench-related structures.

According to Graham, the biostratigraphy markers described by the GSC can be correlated – and tested – on the new 3-D seismic data. He likened Devon's turbidite play to producing analogs in the Gulf of Mexico and offshore Angola.

"Now we can make out the internal components in the turbidites," Graham said, thanks to the new, high-resolution 3-D seismic data, "and figure out where the reservoirs are." □

(Editor's note: Next month the EXPLORER will look at how the Beaufort Mackenzie Basin's current exploration renaissance is being driven by an energy strategy focusing on natural gas.)

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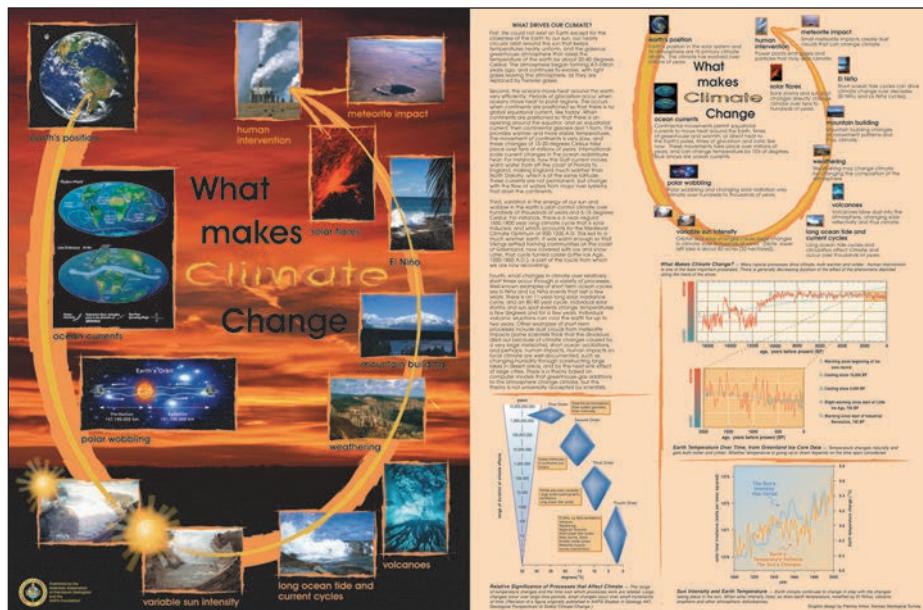
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Teachers Receive Climate Poster

An AAPG poster titled "What Makes Climate Change," showing climate change drivers and scale of climate change, has been made available to selected U.S. teachers and community leaders. About 3,000 posters were printed.

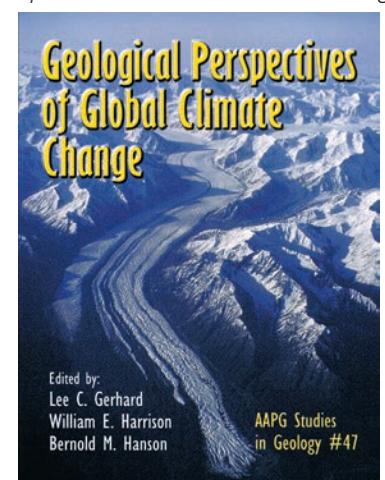
Created and written by members William E. Harrison and Lee C. Gerhard, the poster offers an eye-catching design by Patricia Acker of the Kansas Geological Survey and highlights

explanations of the climate drivers. They include Earth's position, ocean currents, polar wobbling, variable sun intensity, long ocean tide and current cycles, volcanoes, weathering, mountain building, solar flares, El Niño, meteorite impact and human intervention.

In a letter accompanying the poster, AAPG President Patrick J.F. Gratton notes:

"The science of climate change has progressed rapidly in the past few years as more research demonstrates the effects of solar and orbital drivers. As geologists, we are obliged to take the larger view of the universe, and place change into the longer perspective of geologic time. In doing so, it became apparent that there is a relationship between drivers and the amount of change that occurs. The enclosed chart and the accompanying text reprint is sent to you in the hope that it will assist you in your teaching of the science of climate change on Planet Earth."

Also made available to teachers was the introductory text from the AAPG Studies in Geology #47, *Geological Perspectives of Global Climate Change*,



edited by Gerhard, Harrison and Bernold "Bruno" Hanson, from which the poster was derived.

Gerhard and Harrison, both past presidents of AAPG's Division of Environmental Geosciences, said the chart attempts to bring the latest in science to discussion of climate change, particularly including the role of solar and orbital variability.

The project was funded by both AAPG and the AAPG Foundation. □

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APPEX London, NAPE on Tap for '05

APPEX Houston Closes at Apex

By LOUISE S. DURHAM
EXPLORER Correspondent

Just as its originators predicted at its inception four years ago, APPEX grew bigger and better each year.

In fact the 2004 show in September maxed out with record numbers of 2,012 attendees and 289 booths, according to Rick Fritz, AAPG executive director.

A cadre of participants from both the viewing and the booth-holder side gave the latest by-geologists/for-geologists expo a thumbs-up – for both the schmooze factor and the deal-cutting opportunities.

"There were not many people looking around just kicking tires to see what's going on," said Robert Pledger, president of Benchmark Oil & Gas. "Those who came through our booth were definitely interested in participating in outside drilling deals."

The opportunity to just see and be seen in today's competitive business environment has its own element of value.

"APPEX is a good meeting for us as a matter of friends re-establishing contacts, more than specific sales," said James Gibbs, a former AAPG president and chairman of Five States Energy Co., Dallas. "For us, it's a matter of showing the flag."

Something New

Come next year, however, the flag will be fluttering with a far larger gathering when APPEX joins forces with the long-standing, landman-sponsored NAPE event.

Here's the game plan, according to Fritz: The London-based APPEX show will continue as is, and the usual early spring NAPE show will be followed by a NAPE-hosted event in the fall.

Participating board members will include AAPL, AAPG, IPAA and SEG. SIPES and the Houston Geological Society will endorse the meeting.

(APPEX-London is set for March 1-3, 2005 at the IBIS Hotel, Earl's Court. For more information go to www.aapg.org/.)

The huge volunteer effort required to produce APPEX will be supplanted in large part by a professional staff skilled in expo production.

Given that the industry has contracted immensely since the heyday of 20-something years ago, many

participants say the element of non-competition is a good thing.

"It's always been my view that professional societies should get together and cooperate on services to members," said Dan Smith, former AAPG president, "and this is a good opportunity."

"Besides being very supportive of our domestic members' development projects, we can use our international APPEX expertise to help expand that of NAPE," Fritz added.

The desire to continue with two



events annually has strong support among many of the rank-and-file.

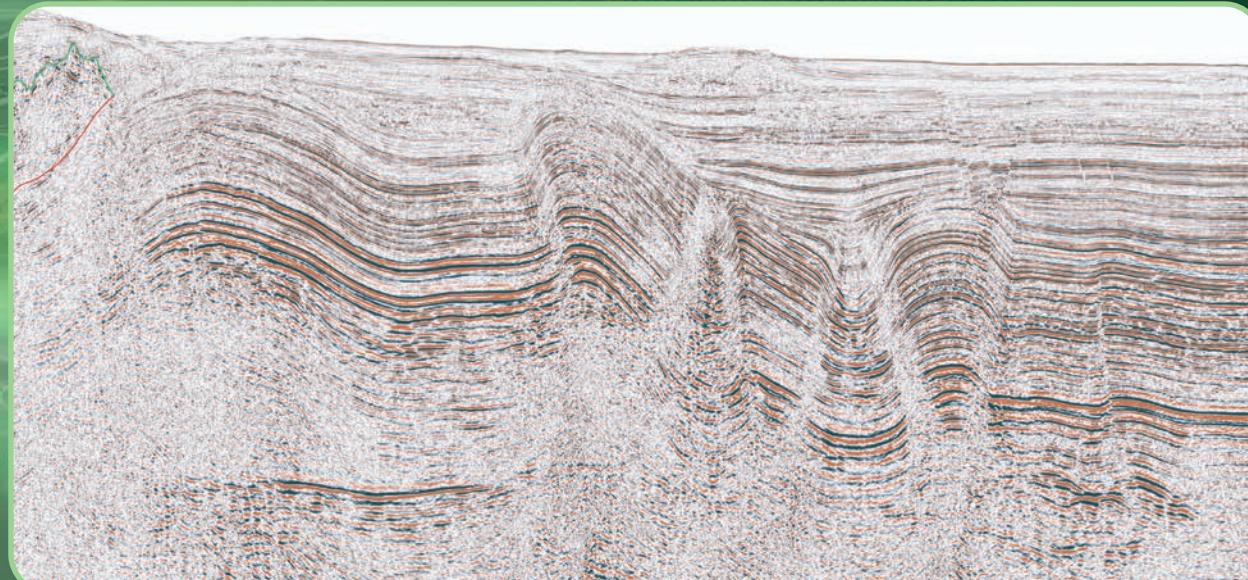
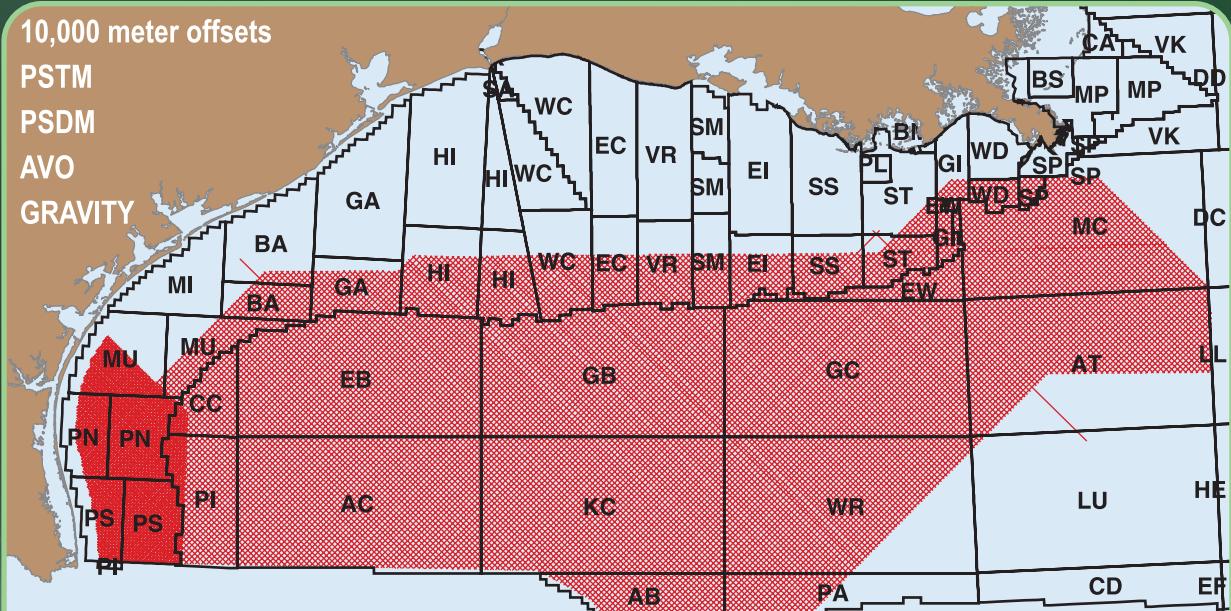
"One in the spring and one in the fall makes a lot of sense," Gibbs said. "In the spring there will be people coming to look for plays they can take and do

seismic on through the year; in the fall, they'll come looking for drilling prospects to participate in before the end of the year."

While some oil and gas folks are concerned about the potential loss of the personal appeal indigenous to a smaller show like APPEX, others take a more pragmatic view.

"I like APPEX because it's a geology-driven show," said Dan Morris, president of Viking International Petroleum, Houston, "but a lot of deals are made by landmen." □

Deep Focus... A new long offset regional survey in the Gulf of Mexico



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Calgary Deadline is Nov. 12

An important deadline has arrived for those who want to present a technical paper or poster at the 2005 AAPG Annual Convention.

Abstract proposals for the meeting are due at AAPG headquarters by Nov. 12.

"Global Roundup – Exploring Energy Systems" is the meeting's theme, and organizers are ready to receive your abstracts, either via e-mail or online directly to convention organizers.

The meeting will be held June 19-22 in Calgary, the first time AAPG has returned to Canada for an annual meeting since 1992.

Organizers are planning on 50 oral and 60 poster sessions, for a total of about 1,000 technical presentations built around 11 themes.

More information is available online at the AAPG Web site, www.aapg.org. □

INTERNATIONAL BULLETIN BOARD

(Editor's note: This column is for international items of note to the AAPG.

News items, press releases and other information should be submitted to the EXPLORER/International Bulletin Board, P.O. Box 979, Tulsa, Okla. 74101; telephone – 918-560-2616; fax – 918-560-2684; or e-mail – dfree@aapg.org.

This report on the 2005 AAPG International Conference and Exhibition was prepared by Gérard Friès, the conference co-chair.)

"New Tracks to New Highs" is the theme of the 2005 AAPG International Conference and Exhibition, to be held in Paris, France, on Sept. 11-14.

This conference, chaired by Jean-Marie Masset (Total) and Gérard Friès (IFP), features a theme that reflects the exciting challenge facing the oil and gas geoscience community in the coming decades.

We in our industry need to contribute decisively to the increasing energy needs of the world. This means:

- ✓ Devising efficient and environmentally friendly new technologies based on active industrial and academic research.
- ✓ Opening new regional opportunities.
- ✓ Continuing the successful deepwater venture.
- ✓ Tackling aggressively complex and unconventional plays.
- ✓ Improving the production of giant fields.
- ✓ Increasing the production of the huge resources of heavy oils and non-conventional hydrocarbons.
- ✓ Ensuring the education of new generations of skillful geoscientists.

The proposed technical program for Paris is clearly designed to attract abstracts addressing these hot topics. It is divided into three major sections:

- New insights into petroleum provinces, from mature giant fields to recent successes in Europe, Africa and the Middle East, North Sea and adjacent onshore basins, Peri-Caspian and Siberian basins, Circum-Mediterranean basins, East-Atlantic margin and Sub-Saharan Africa basins, Arabian Peninsula and Gulf region.

- New tracks in E&P activity, including:
 - ✓ Management forums.
 - ✓ Business and environmental challenges.
 - ✓ Sustainable development.
 - ✓ Making the most of mature fields.
 - ✓ Maximizing the value of gas resources.
 - ✓ Deep and ultra-deep water development optimization and challenges.
 - ✓ New and unconventional plays.
 - ✓ Petroleum assets and risk management.
 - ✓ New geoscientists for E&P

challenges, data management and knowledge systems.

□ New techniques for addressing new challenges, including:

- ✓ Evolving stratigraphic techniques and interpretation.
- ✓ Improving recovery of carbonate and clastic reservoirs.
- ✓ Diagenetic modeling in carbonate and siliciclastic reservoirs.
- ✓ Technical challenges and solutions for IOR and EOR.
- ✓ Advances in reservoir modeling, applications of rocks and fluid geochemistry.
- ✓ Advances in basin and petroleum system modeling.
- ✓ Three-D and 4-D seismic imaging and interpretation.
- ✓ Faults and fractures modeling and flow.
- ✓ Improved understanding of plays related to salt and shale tectonics.
- ✓ New plays in rift and passive margin settings.
- ✓ New concepts in exploring compressional provinces.
- ✓ Data while drilling and from borehole monitoring.

This technical program will be complemented by exciting field trips in the European and Middle East regions, plus timely short courses.

Prestigious Paris definitely will be the meeting place of those who care for providing the future resources for the petroleum and gas industry in the perspective of sustainable development and respect of our environment.

The call for abstracts was inserted in the October EXPLORER, and can be found online at www.aapg.org.

Deepwater Frontier Symposium

The IPA Deepwater and Frontier Symposium, co-sponsored by AAPG, will be held Dec. 7-8 in Jakarta, Indonesia, at the Regent Hotel.

Information can be found online in the international regions section of the AAPG Web site, www.aapg.org.

New Europe Region Officers

Election results have been announced for AAPG's European Region. The winners are:

- President-elect – John Brooks, Brookwood, England. (He will assume the Region's presidency July 1.)
- Vice president – Mike Lakin, London, England.
- House of Delegates – Jonathan Green, Geneva, Switzerland; and Carol Lucas.

They join Region officers Sigrunn Johnsen, Oslo, Norway, president; Francois Roure, Rueil-Malmaison, France, secretary; and Andrew Hurst, Aberdeen, Scotland, advisory council, on the leadership team. □

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PROFESSIONAL NEWS BRIEFS

Jack Breig, to petrophysicist, Newfield Exploration Midcontinent, Tulsa. Previously consultant, Houston.

Robert Chanpong, to senior geological adviser, Occidental Oil and Gas, Houston. Previously senior development geologist, BHP Billiton (Americas), Houston.

John Chimahusky, to Kirkpatrick Oil, Oklahoma City. Previously exploration manager-former Soviet Union, ConocoPhillips, Bartlesville, Okla.

Elizabeth Bartlett Culp, to associate geologist, Chesapeake Energy, Oklahoma City. Previously geologist, TXO, Oklahoma City.

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

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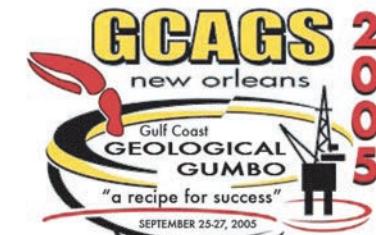
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HOW AND WHEN TO SUBMIT

Abstracts of all proposed presentations must be submitted in standard format (250 words or less, no figures) by **January 17, 2005**.

There are two ways to submit abstracts:

- 1) Connect to the GCAGS 2005 website, <http://www.gcags2005.com> and follow the instructions. You can cut and paste a prepared text.
- 2) Mail a diskette or CD with the abstract in a .doc or .rtf format, and a short note indicating your address, phone number and email address. Also, indicate your preferred theme and preferred mode of presentation to:

Technical Programs – GCAGS 2005, 810 Union Street, Suite 300, New Orleans, Louisiana 70112

Oral, poster, visualization, or core presentations will be accepted. Authors will be notified of acceptance on February 20, 2005. All presenters must submit a paper of < 11 pages or an extended abstract with key figures of ~2-4 pages by April 10, 2005. These will be published in the *Transactions*. Instructions and a template will be posted on the GCAGS2005 website.

ABSTRACT DEADLINE: JANUARY 17, 2005! Questions should be directed to Mike Ledet at abstracts@gcags2005.com.

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The following candidates have submitted applications for membership in the Association and, below, certification by the Division of Professional Affairs. This does not constitute election, but places the names before the membership at large. Any information bearing on the qualifications of these candidates should be sent promptly to the Executive Committee, P.O. Box 979, Tulsa, Okla. 74101. (Names of sponsors are placed in parentheses. Reinstatements indicated do not require sponsors.)

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IN MEMORY

Philip H. Abelson, an AAPG award winner and longtime science adviser to the American Association for the Advancement of Science, died Aug. 1 in Washington, D.C. He was 91.

Abelson, former editor of Science magazine and the AAPG Journalism Award winner in 1977, also received a national Medal of Science from then-President Ronald Reagan for "path-breaking contributions ... and penetrating counsel on national matters involving science and technology."

He retired in 1978 as president of the Carnegie Institution of Washington, and became a trustee of AAAS.

Philip Hauge Abelson, 91
 Washington, D.C., Aug. 1, 2004

Burton Brown, 76
 Richmond, Va., June 28, 2004

John Robert Coombs, 88
 Evansville, Ind., July 25, 2004

Charles Alexander Houston, 85
 Grapevine, Texas, July 22, 2004

Roy B. Ralston, 87
 Bartlesville, Okla., Sept. 30, 2004

Robert John Ross, 90
 Kerrville, Texas, Aug. 14, 2004

Keith P. Young, 86
 Austin, Texas, Aug. 20, 2004

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

Correction

We were mistaken in the October issue in listing the company from which Christopher P.M. Heath retired.

Heath, who has been named to

receive AAPG's Honorary Membership Award at the AAPG Annual Convention in Calgary, is retired from Amoco.

The EXPLORER regrets the error.

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READERS' FORUM

On the Mark

I enjoyed Marlan Downey's "Looking Back" feature titled "Beware of Robot Geology" (October EXPLORER), which summarized Walter K. Link's feelings 50 years ago toward computer-driven geologic interpretation being emphasized over that obtained by field observation.

I had the good fortune to meet Walter Link in the fall of 1981 at his home in LaPorte, Ind. I was home for a short visit to northern Indiana from my job with Exxon USA in Kingsville, Texas. While home, I noticed our phone book had a listing under "International Petroleum Exploration," and Walter Link's LaPorte listing was given.

Being a very green petroleum geologist, I was curious as to how one made a living exploring for oil and gas on the international stage from the rural community of LaPorte. I had never heard of Walter Link before, so I called him, introduced myself and asked him if we could meet to discuss what he did in international exploration. He told me to come over the next day.

I remember being impressed with his stately home and being directed to wait for him on his patio as he was out taking a walk. A few minutes later he arrived and came out to meet me.

I was surprised at his advanced age – he was then about 80. I mentioned that I was a geologist with just over a year's experience working for Exxon. He chuckled and said, "I used to be your chief geologist," when Exxon was Standard Oil of New Jersey.

I was even more impressed when he told me that he had begun his career by being personally hired by Wallace Pratt, who immediately sent him off to do field work in Venezuela. Walter then spent the next several hours telling me stories of his work in South America, Central America, Indonesia and other places for Standard, Petrobras, Hunt International and others. I felt I was in the presence of one of the "giants" of our industry.

After our talk he asked if I could return the next day to meet executives of Amoco who were coming to LaPorte to consult with him regarding prospects in northwest Canada. I was touched by his hospitality and willingness to further my exposure to others in the international field. With regrets I had to decline so as to be able to get back to South Texas in time for work. I've sometimes wondered

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

what other directions my career might have taken had I been able to stay for that meeting.

The thoughts expressed by Walter Link in 1954 were made when he was only 52 and in the early prime of his career. Yet at age 80, he was still an active consultant making significant contributions to international exploration. His ability to do so was based on his lifetime of fieldwork and

direct observation, the sum of which increased his value to his clients as he got older.

He answered my question about how one goes about doing international exploration from a northern Indiana farming community. With a lifetime of valuable and varied field experience to call from – and a curious mind that seeks to always learn more – one can work from

anywhere.

Today, with the increased availability of data, one must interpret to generate plays and prospects, mastery of digital databases, and computer modeling and mapping are necessary to be competitive. But a balance should still be struck with field observation, when possible, so that the outputs of computer simulations and gridding algorithms can be placed in their proper geologic context.

In this regard, Walter Link's opinion of 50 years ago remains on the mark.

Cary P. Kuminecz
Orchard Park, N.Y.



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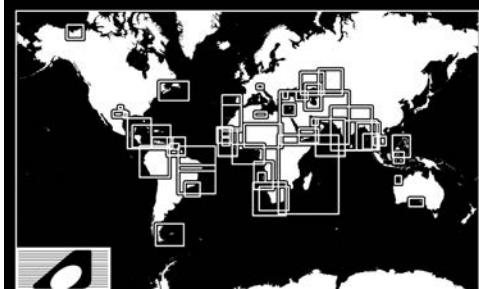
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Figure 2 – Archival photograph of a Geological Survey of Canada field party hauling a scow up the Athabasca River, Alberta, in 1914.

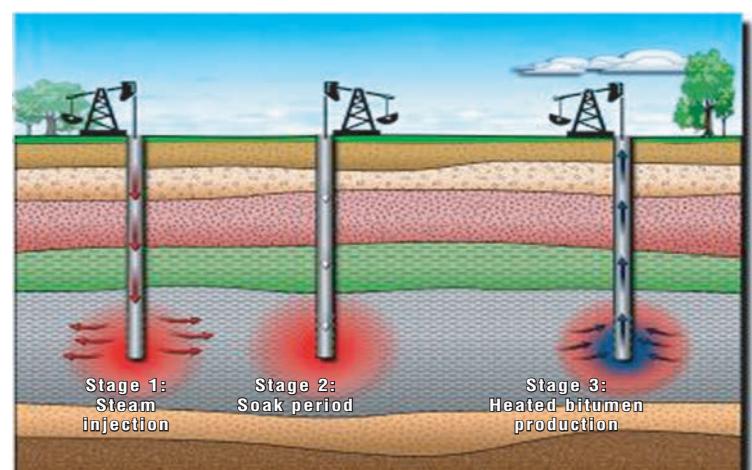
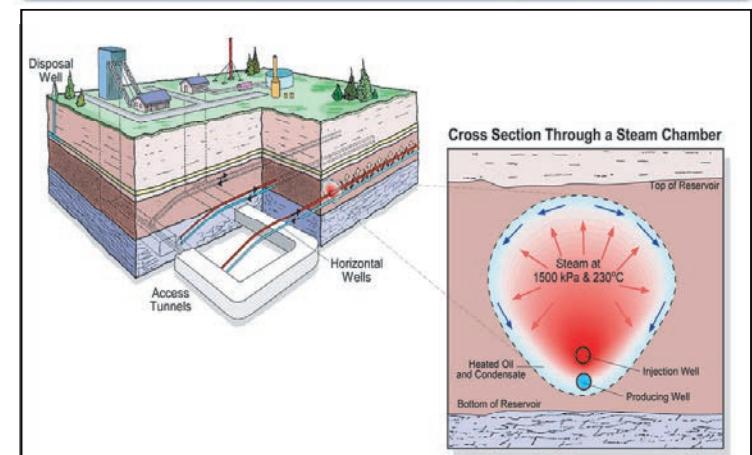


Figure 3 – Sketches of common *in-situ* technologies for recovery of bitumen: (A, top) Cyclic Steam Stimulation (CSS); (B, bottom) Steam-Assisted Gravity Drainage (SAGD)



EMD

from page 38

(CSS) and Steam Assisted Gravity Drainage (SAGD).

□ Canada's largest *in-situ* bitumen recovery project uses CSS at Cold Lake. Steam injected down the well bore into the reservoir heats the bitumen; followed by a soak period; and then the same well bore is used to pump up fluids (figure 3A).

At Cold Lake about 3,200 wells are currently operating from multiple pads, with two aboveground pipelines – one to deliver steam and the other to transport

fluids back to the processing plant.

□ At Athabasca, the SAGD technology is used.

Horizontal well pairs (700 meters long with five-meter vertical separation) are drilled from surface pads to intersect bitumen pay (figure 3B). Steam from the upper injector well expands, reducing the viscosity of the bitumen, allowing the bitumen to flow. A shell forms at the cold interface with the unheated reservoir, along which bitumen/condensate drain by gravity to the lower producing well (figure 3B).

Electrical submersible pumps (ESPs) may assist in lift.

* * *

Continuing challenges for economic *in-situ* recovery involve water and gas requirements for steam generation, reclamation and emission controls of greenhouse gases. Generally, it takes 28 meters³ (1,000 feet³) of natural gas and from 2.5 to four barrels of water to produce one barrel of bitumen. Reclamation of mining sites is done to a standard to at least the equivalent of their previous biological productivity.

Beginning in the mid-1970s, the North American energy crises have made the Canadian oil sands a more strategic resource for North American energy needs, accelerating industry's interest and efforts to tap these vast bitumen reserves.

(Editor's note: Hein is with the Alberta Geological Survey. Reserves estimates courtesy of Alberta Energy and Utilities Board.)

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The Associate Chair for Research serves as the chief sponsored projects officer of the Department, under the direction of the Chairman. The position involves assisting faculty in proposal preparation, submission, and reporting, oversight of research support staff, related facility budgets, and administrative support for technical matters (purchasing, renovations, staffing) in support of Department research facilities. The Associate Chair will assist faculty in disseminating research results to the public and other audiences using the web and other media. Minimum qualification is a Masters degree in an Earth or related science. Preferred qualification is a PhD in an Earth or related science. The position requires excellent skills in technical writing, and experience in budget and proposal preparation for Federal and other granting agencies. A combination of industry, academic, or government service may be useful, but some direct experience in an academic research environment is a necessary qualification. The appointment will be a 12-month salaried position in the University of Texas at Austin Administrative and Professional staff category. Salary level is negotiable, and depends upon qualifications and experience. Please send a complete resume and a written statement of interest in this position to: Chairman, The University of Texas at Austin, Geol Sci Dept., 1 University Station C1100, Austin, TX 78712-0254. The position will be filled no later than August 1, 2005. For information on the Department, see <http://www.geo.utexas.edu>

Background check conducted on applicant selected.
The University of Texas at Austin is an Affirmative Action/Equal Opportunity Employer.

Faculty Position in Petroleum Geoscience (Reservoir Imaging)

The Department of Earth Sciences at Memorial University of Newfoundland invites

applications for a faculty position in Petroleum Geoscience (Reservoir Imaging). This position is an integral element in Memorial University's new broadly-based strategic petroleum initiative, the Oil and Gas Development Partnership (www.mun.ca/ogdp), which recognizes the rapid expansion in hydrocarbon exploration and production in offshore Newfoundland. The successful candidate will join an active department of 25 faculty members (www.esd.mun.ca) and will play a complementary role in a growing team of petroleum geoscientists operating within the framework of the PanAtlantic Petroleum Systems Consortium (PPSC: www.mun.ca/ogdp/ppsc).

This position is funded as a contractual position until March 31, 2008, under the terms of a grant from the Atlantic Innovation Fund to the PPSC, with the possibility of renewal or conversion to tenure track with administrative approval.

Applicants will be expected to undertake cutting-edge research in reservoir imaging, based on expertise in structural/stratigraphic reconstruction and geophysical characterization.

Applicants will normally hold a PhD in petroleum geoscience or a related field. They should have a demonstrated record of technical achievement and publication in a field relevant to the appointment and of excellence in teaching at the undergraduate and graduate levels. A proven record of effective involvement with the petroleum industry would be a significant asset.

The Department of Earth Sciences comprises researchers with a wide range of interests relevant to petroleum geoscience and close collaborative ties with industry and geological surveys, locally, nationally and internationally. Current petroleum-related research in the Department is supported by extensive analytical, field and computing facilities, including an immersive visualization room.

Memorial University is the largest university in Atlantic Canada. As the province's only university, Memorial plays an integral role in the education and cultural life of Newfoundland and Labrador. Offering diverse undergraduate and graduate programs to almost 18,000 students, Memorial provides a distinctive and stimulating environment for learning in St. John's, a safe, friendly city with historic charm, a vibrant cultural life and easy access to a wide range of outdoor activities.

Memorial University is part of a vigorous, local community which maintains an inventory of available positions for qualified partners. Partners of candidates for positions are invited to include their resume for possible matching with other job opportunities. Memorial University is committed to employment equity and encourages applications from qualified women and men, visible minorities, aboriginal people and persons with disabilities. All qualified candidates are encouraged to apply; however, Canadians and permanent residents will be given priority.

Review of applications will begin November 1, 2004, and continue until the position is filled.

Interested persons should send a resume and the names of three referees to:

Dr. Rick Hiscott, Interim Department Head
Department of Earth Sciences
Memorial University of Newfoundland
St. John's, NL, Canada A1B 3XS
Phone: (709) 737-2334
Fax: (709) 737-7437
E-mail: head@esd.mun.ca



Memorial
University of Newfoundland

COLORADO SCHOOL OF MINES DEPARTMENT OF GEOLOGY AND GEOLOGICAL ENGINEERING ASSOCIATE PROFESSOR OF STRATIGRAPHY/SEDIMENTOLOGY

Applications are invited for an anticipated tenure-track position in the field of Stratigraphy/Sedimentology at the associate professor level. The Department of Geology and Geological Engineering has a strong tradition in applied undergraduate and graduate education and offers a B.S. (Geological Engineering), as well as Master's (MS and ME) and PhD degrees with sub-disciplines of petroleum, mineral exploration, groundwater engineering, and geotechnical engineering. The Department has 21 faculty, 5 supporting staff, and approximately 60 undergraduate and 110 graduate students. Programs are enhanced through close collaboration with the departments of Petroleum Engineering, Geophysics, Chemistry and Geochemistry, Environmental Science and Engineering, and Mining Engineering. Information about the school, the Petroleum Program, and the department can be found at <http://www.mines.edu/Academic/geology>.

CSM houses numerous research centers and programs related to petroleum exploration and production, including the Chevron Texaco Center of Research Excellence (CoRE), the Colorado Energy Research Institute, the Slope and Basin Consortium, the Lewis Shale Consortium, the Potential Gas Agency, and the Rocky Mountain Petroleum Technology Transfer Center. The CoRE effort, in particular, is a multi-year, industry-funded project that is focused on integrated stratigraphic-structural studies. The successful candidate will have the opportunity to directly interact with this program. CSM maintains a total research volume on the order of \$30 million per year, with sponsors including private industry, DOE, NSF, DOD, and USEPA.

Responsibilities: The successful candidate will be expected to teach at the undergraduate and graduate levels, direct graduate research, and develop a strong, externally funded interdisciplinary research program.

Qualifications: Applicants must have a Ph.D. in a science or engineering field. Preference will be given to applicants with specialties in sequence stratigraphy and sedimentology and their applications to reservoir modeling. Experience with deep-water clastic systems is desirable. Experience with petroleum-related research studies and/or petroleum industry experience would be highly advantageous. The successful candidate must demonstrate strong interpersonal and communications abilities, and provide a record of successful collaborative research/teaching experiences.

To Apply: Applicants must send a letter of application, resume, brief statement of professional goals with an emphasis on teaching and research objectives, and names and addresses of three professional references to: Colorado School of Mines, Office of Human Resources, Search #04-051030, 1500 Illinois Street, Golden, CO 80401. Review of applications will begin no later than December 3, 2004.

CSM is an EO/AA employer and is committed to enhancing the diversity of its campus community. Women, minorities, veterans, and persons with disabilities are encouraged to apply.

DIRECTOR'S CORNER

Strategic Plan Sets the Bar High

By RICK FRITZ

"Where there is an open mind, there will always be a frontier."

This quote by inventor Charles Kettering describes our profession. It is the basis for scientific discovery and prospecting for petroleum and energy-related minerals.

In this EXPLORER, on pages 20-22, you will find AAPG's Strategic Plan, which looks into the frontier of our collective future. The plan is an important document, and I urge you to take time to read it, contemplate its direction and see if you agree with its conclusions.

I also urge you to respond directly to me by e-mail at rfritz@aapg.org, or in writing to P.O. Box 979, Tulsa, Okla. 74101.

* * *

The creation of our strategic plan started last year, when then-AAPG President Steve Sonnenberg asked Dan Smith, chair of the Advisory Council, to develop of a comprehensive strategic plan. After some evaluation, we asked Paul Meyer of Tecker and Associates to help facilitate the plan's development, working with the Executive Committee, Advisory Council, divisions and staff.

Please note that the plan is not designed to be an exact document. Think of it as a road map. The purpose is to define the Association's ultimate destination. We may take a detour here or find a new road there, but in the end we know the direction and design of our journey. This allows us to build better business plans for the immediate future.

□ Assumptions About the Relevant

Big Audacious Goal: To be indispensable to all professionals in the energy-related geosciences worldwide.

Future are important to read, because they are the basis for the plan.

In the first assumption under demographics, for example, the plan states that "the industry's professional community will increasingly become global." You may think that this is just stating the obvious, but it sparked a lively debate among participants about whether AAPG is really an international organization (domestic entity with international members) or a truly global organization (worldwide mindset).

Most agreed that AAPG is the former, but would move to the latter, so we should prepare and plan for this eventuality.

Some of the assumptions may need to be adjusted, such as "Global Business," where we state that "oil prices will remain somewhat predictable and within a stable range." Of course, this depends on whether you are discussing current conditions or an average into the future.

□ The next section, **10-15 Year Planning Horizon**, contains members' thoughts on the Association's philosophy. We state in the "Core Purpose" that "AAPG members want to advance the science and profession of energy-related geosciences worldwide." This is a simple

expression, but it is important that the majority of members agree on the core purpose in order to set plans for the Association's future.

□ The last part of the philosophic planning horizon is the envisioned future. This is a statement of the ultimate goal – of "setting the bar" so high that it is almost impossible to reach.

This section contains a "wish list" of goals that should guide AAPG in the detailed planning of each of AAPG's programs.

The details of the plan are contained in the **1-10 Year Planning Horizon**. This section is divided into goal areas that describe the strategic objectives for each of AAPG's programs. It also includes the priorities for each objective. It is this section that the AAPG leadership and staff will use to build and maintain its five-year business plan.

□ The last section, **5-10 Year Planning Horizon**, is a set of "Mega Issues" for the society. Essentially, it is a series of key questions that are asked when considering the strategic objectives, such as:

✓ How will AAPG address the increasing interest in alternative energy

technologies?

✓ Do we plan for this?

✓ Do we build programs for our members for working on alternative energy?

As each of these questions is answered, it further defines our direction.

* * *

The ultimate goal of strategic planning is to set the stage for tactical operations on a day-to-day basis. It allows us to examine each program and decide how it fits into the future. Should we keep it, maintain it, or grow it? The strategy allows us to decide which *new* programs to accept and develop for the membership.

Success is often dictated by effort and, since we have limited resources, we do not want that effort misplaced. The strategic plan helps the AAPG leadership and staff work more efficiently.

Members who participated in the strategic process defined AAPG's "Big Audacious Goal" as "To be indispensable to all professionals in the energy-related geosciences worldwide." This is basically saying that AAPG would like to work toward a goal where every geoscientist needs to be a member of AAPG to do their work and achieve their professional goals.

This is high mark, but it is certainly one worth the effort.

Field Trip Planned at Calgary Meeting Oil Sands Tapped as Major Resource

By FRANCES J. HEIN

Oil sands consist of bitumen (soluble organic matter) and host sediment with associated minerals, excluding any related natural gas. Most of the oil sand deposits in the world are found in Venezuela and Canada.

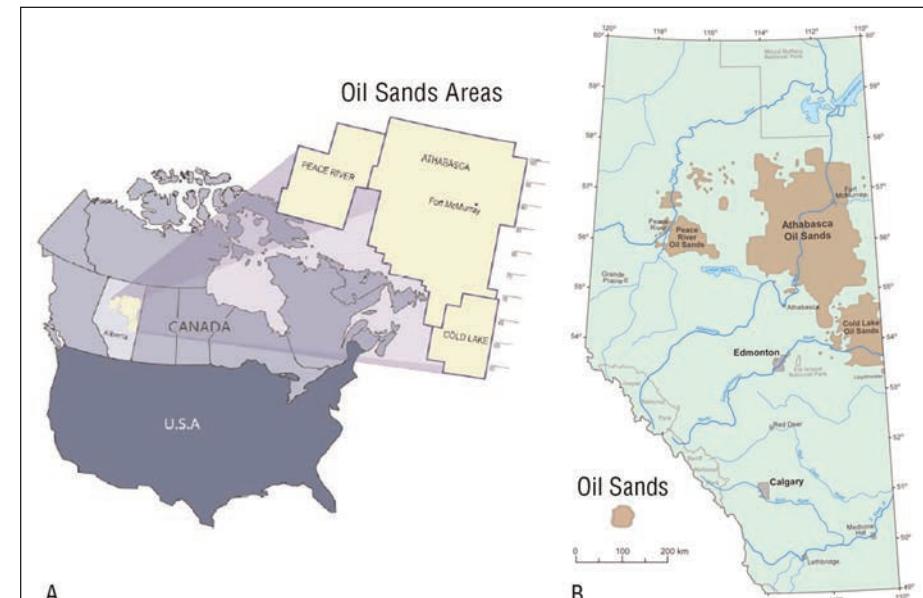
In Canada, oil sands occur in Cretaceous fluvial-estuarine deposits of northeastern Alberta, covering an area greater than 140,000 kilometers² (figures 1A, 1B). Bitumen also is hosted in carbonates in Alberta but, to date, these are not commercially produced.

In 2003, Alberta's reserves estimates of remaining established oil reserves is 174.5 billion barrels, comparable with the oil reserves of Saudi Arabia. In 2001, Alberta's production of raw bitumen and synthetic crude oil exceeded that for conventional crude oil, accounting for 53 percent of Alberta's oil production. This trend is expected to increase to be about 80 percent of Alberta's oil production by 2013.

* * *

Development of the Canadian oil sands industry has a history of over 90 years. In 1913 Sidney Ells organized the first field parties to work on oil sands, hauling out over nine tons of oil sands by scows up the Athabasca River valley (figure 2, page 36).

Today, near Fort McMurray, oil sands are recovered in open-pit mines by



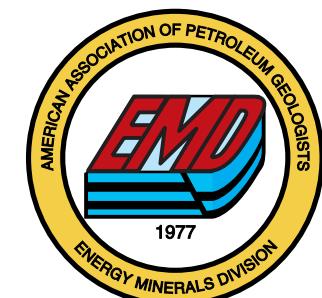
Graphics courtesy of Alberta Energy and Utilities Board and Alberta Geological Society
Figure 1 – Location of the Alberta oil sands in Canada: (A) regulatory areas of oil sands development; (B) surficial projection of the Athabasca, Peace River and Cold Lake deposits.

truck-and-shovel operations in which the world's largest Caterpillar 797 and 797B trucks have payloads of 380 tons. Oil sand is transported to processing plants, where hot or warm water separates the bitumen from the sand, followed by dilution with lighter hydrocarbons and upgrading to synthetic crude oil (SCO) – a mixture of

pentanes and heavier hydrocarbons.

About 20 percent of the oil sands reserves in Alberta are recoverable by surface mining; *in-situ* technologies need to be used for the remaining 80 percent of the oil sands that are buried at depth (greater than 75 meters).

Alberta's oil sands are unconsolidated, held together by the



pore-filling bitumen. The bitumen is a natural, tar-like mixture of hydrocarbons that when heated has a consistency of molasses.

In its natural state, bitumen (density range of 8-12 degrees API; at room temperature viscosity greater than 50,000 centipoises) will not flow to a well bore.

In Alberta other heavy oil in sand is also considered as "oil sands" if it is located within the oil-sand application areas (figure 1A). However, because the pore-fluid is heavy oil and will flow to a well, these deposits are referred to as "primary *in-situ* crude bitumen." The major challenge of recovering bitumen from depth is to overcome its high viscosity to allow it to flow to the well bore.

To do this, thermal (or other non-primary) *in-situ* methods are used – most commonly Cyclic Steam Stimulation

See **EMD**, page 36



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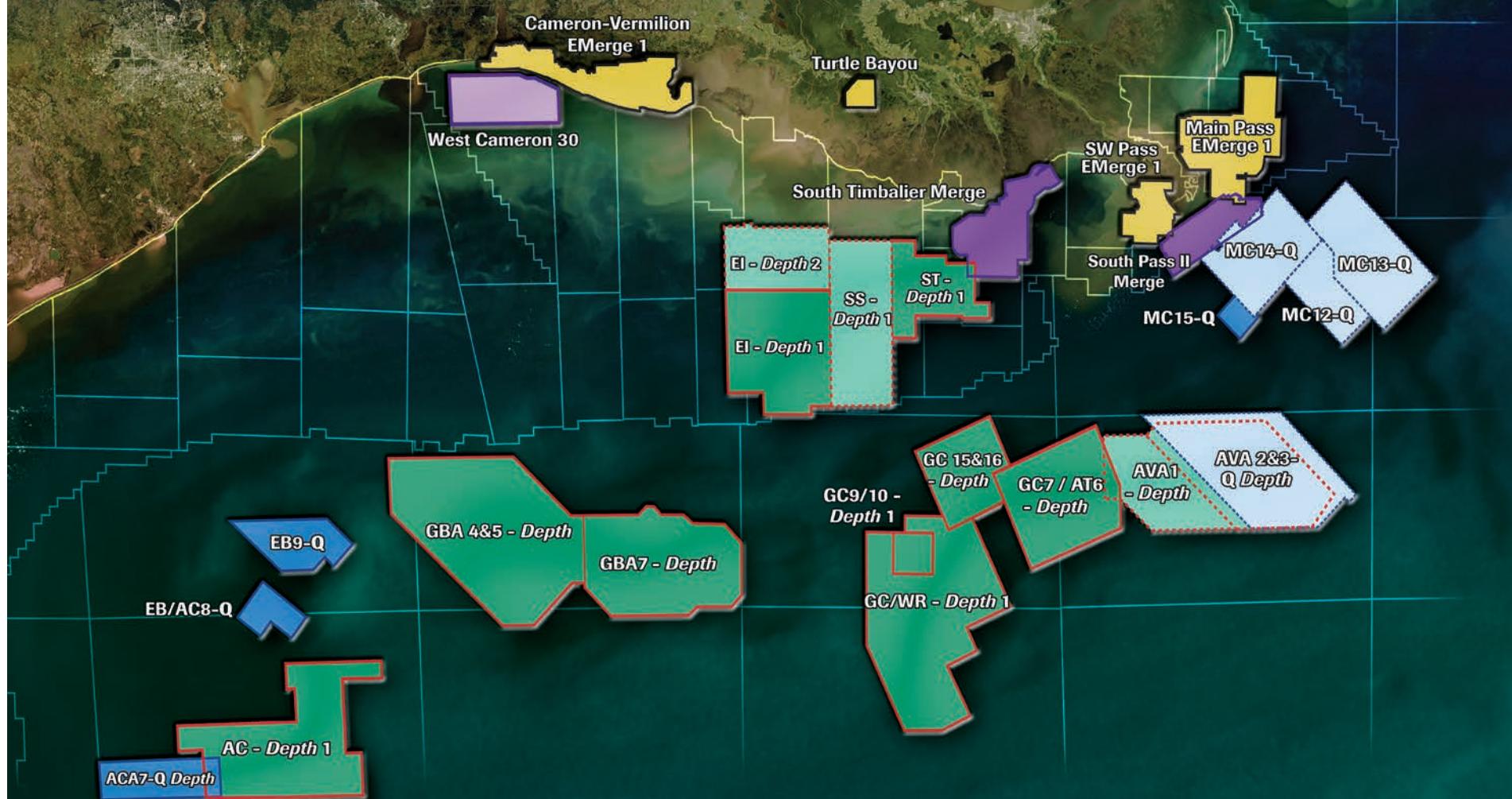
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