

AAPG AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, AN INTERNATIONAL ORGANIZATION

EXPLORER

MARCH 2006



Welcome Back

Exploration Has
Returned to Libya

See page 12



Getting Ready For
Houston?
See page 7

enlightening



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On the cover: Seismic industry officials from around the world are singing the same song these days – the times in their world today are hot. And one of the hottest places for new exploration is Libya, a country that was off the industry's radar screen for decades but now has open doors. See story on page 12. Other regions of the world are getting their fair share of activity, too, as per the EXPLORER's annual look at the seismic industry. See story on page 8. Cover photo of seismic operations in Libya courtesy of BGP International.

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PRESIDENT'S COLUMN

AAPG at the Crossroads Part II: Choosing the Path

By PETER R. ROSE

"There's no end to the good you can do, if you don't care who gets the credit."

And when responsible, knowledgeable AAPG leaders work together, members and their Association inevitably benefit.

My letter to AAPG members in the January EXPLORER ("AAPG at the Crossroads") laid out a course implementing AAPG's Strategic Plan and moving the Association toward a true international identity in the coming years, recognizing that, in the present global energy transition, the alternate course – the status quo – is to surrender world E&P leadership and to be bypassed (as merely a regional association) on the global energy stage.

I identified three problems the Association needed to address and solve:

1. Establish a new vice president (Regions) on AAPG's Executive Committee to speak for our international members, who historically have been notably under-represented on the EC.

2. Encourage AAPG membership growth in low-income situations by adopting a graduated dues scale based directly or indirectly on "ability to pay."

3. Simplify and streamline application procedures for international geoscientists to apply for AAPG membership.

I am very proud of AAPG leaders from the House of Delegates (HoD), the Advisory Council (AC), the Executive Committee (EC) and the Tulsa-based administration (HQ), who all have been working to address these problems. This letter, which you will read in early March (while I am traveling in the Far East to promote international membership in Australia, Malaysia, China and India), will update AAPG members as to the status of the leadership's responses to my requests.

You will see that lots of good folks have been usefully busy, and the Association is being very well served. Things are working.

Some U.S. members, especially independents, might be concerned that this recommended global course implies that AAPG will, in the future, de-emphasize their interests. In my mind, nothing could be farther from the truth. In its conferences, publications, short-courses and services, AAPG will continue to provide strong coverage related to U.S. E&P issues, developments and technologies. The recent establishment of GEO-DC, in Washington, D.C., is an example.

But U.S. members need to understand that E&P globalization means more opportunities for them – as international venturers and consultants, as professional users of technologies developed overseas and applied in the United States and as students of geotechnical concepts and models that originated in other countries.

This should not be an "us versus them" issue.

* * *

At its Dec. 1, 2005, teleconference, the Executive Committee recognized that improving membership application



Rose

procedures did not require legislative action. This could be handled administratively, and Executive Director Rick Fritz is giving first priority to this issue through AAPG's Member Services Department.

The EC also approved the concept of a new vice president for international affairs, but deferred to the HoD on the question of a system for graduated dues.

HoD Chairman Don Clarke and the House leadership first considered these issues at their mid-year meeting on Nov. 19, 2005. They soon realized that by refocusing the existing vice president's duties on the U.S. Sections a highly desirable "win-win" goal could be achieved: to emphasize and implement the service needs of the U.S. Sections as well as the international Regions with Tulsa HQ. So their proposed amendments contained both a new VP (Regions) as well as a renamed VP (Sections). Great idea!

On Jan. 5, 2006, after extensive deliberations, chairman David Hawk's Constitution and Bylaws Committee delivered their proposed amendments to the HoD leadership, which approved amendments pertaining to the new vice president configuration, as well as another set of amendments outlining a graduated dues proposal. Pat Gratton, chair of the AC, and I witnessed the teleconference.

Upon notification by AAPG's counsel, Craig Blackstock, that all proposed amendments were legal, the EC on Jan. 5 approved the vice presidential amendments, on which the HoD will now vote at AAPG's convention in Houston on Sunday, April 9. One of the vice presidential amendments is a

See **President**, page 6

Online Voting Now Available

Electronic voting for 2006-07 AAPG officer candidates is now available online at www.aapg.org.

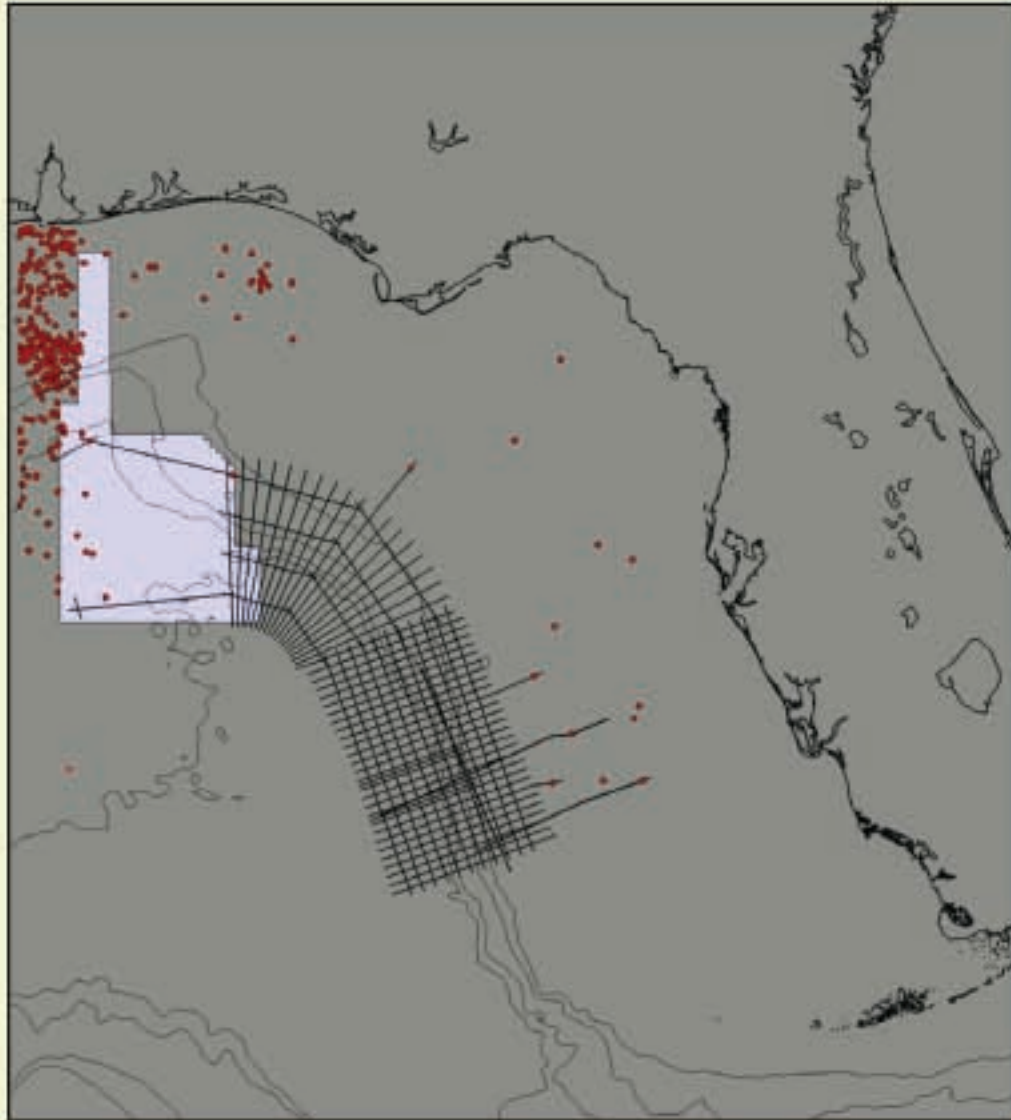
The site contains the seven-person officer slate, voting instructions and all biographical information, plus the

candidates' statements of why they are standing for office.

Electronic voting will remain available until voting closes and ballots are counted on May 15.

For more information see page 36.

US OPEN WEST FLORIDA WF MULTI CLIENT PHASE 1 PROGRAM MAP



STATUS

THE DATA ARE PRESENTLY BEING PROCESSED AND WILL BE READY FOR DELIVERY DURING 2ND QUARTER 2006

DELIVERABLES

PSTM SEG-Y
NAVIGATION
STACKING VELOCITIES

PRODUCTS

GRAVITY
MAGNETICS
INTERPRETATION IN TIME AND DEPTH
STACKING VELOCITY CUBE
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OBSERVED FAULTS

PETROLEUM POTENTIAL

The WF survey area is considered a hydrocarbon-prone area.

The seismic lines from the survey demonstrate great variety in geology. This combined with hydrocarbon presence, suggests excellent conditions for exploration and success.

Based on adjacent geology, one can expect that the source rocks are:

1. Upper Jurassic Oxfordian to Kimmeridgian carbonates and shales.
2. Tithonian shales and carbonates.
3. Lower Cretaceous Aptian to Albian carbonates and shales.

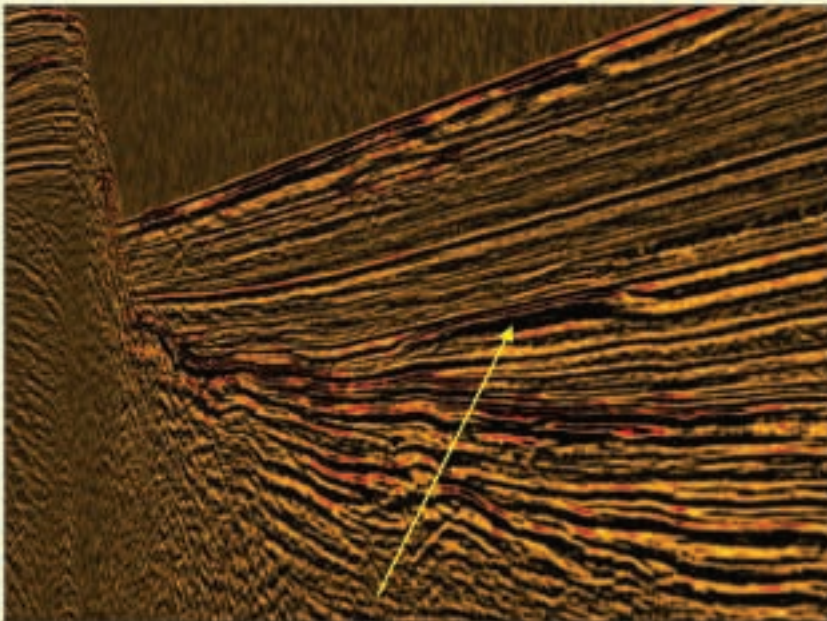
Petroleum traps:

1. Middle Jurassic fault blocks.
2. Upper Jurassic deep water microbial buildups on the outer portions of the carbonate ramps.
3. Lower Cretaceous rudist reef rudstones, boundstones and slope carbonate deposits, as well as fore-reef debris rudstones and shelf derived grainstones, which are expected to lie seaward of the Lower Cretaceous shelf margin.
4. Norphlet sandstone, drape over.
5. Stratigraphic traps.
6. Large Tertiary sand lobes.
7. Salt Diapirs.

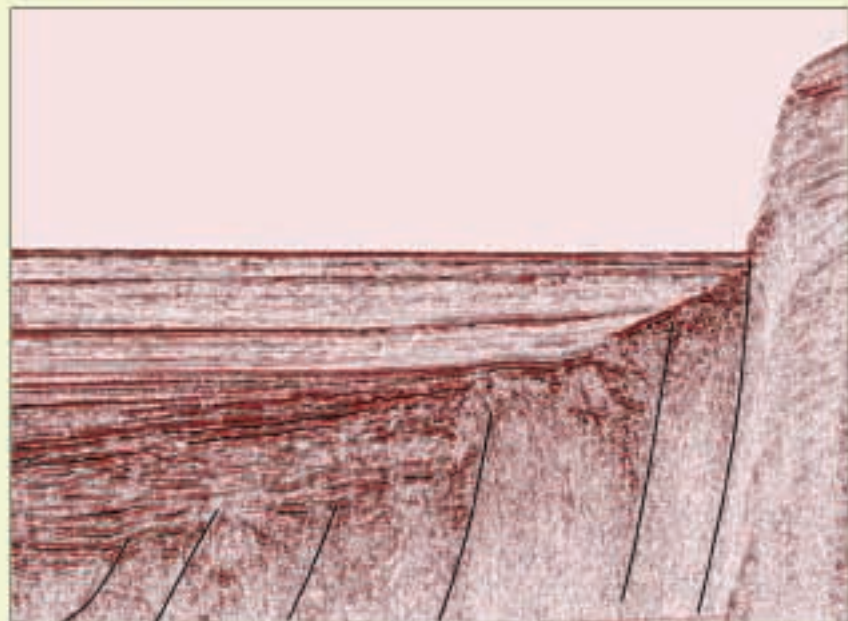
BIG WAVE SEISMIC SURVEY 10,000 Km



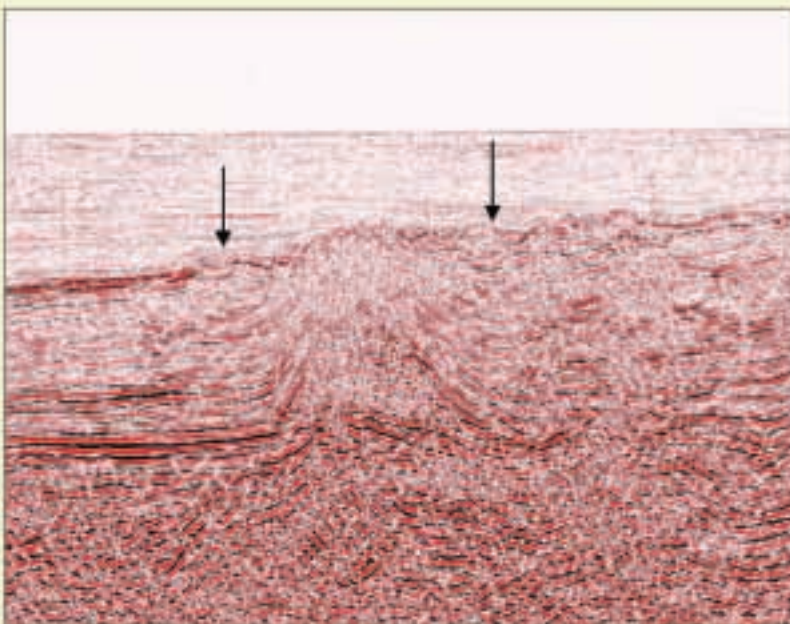
EXAMPLES FROM BRUTE STACKS



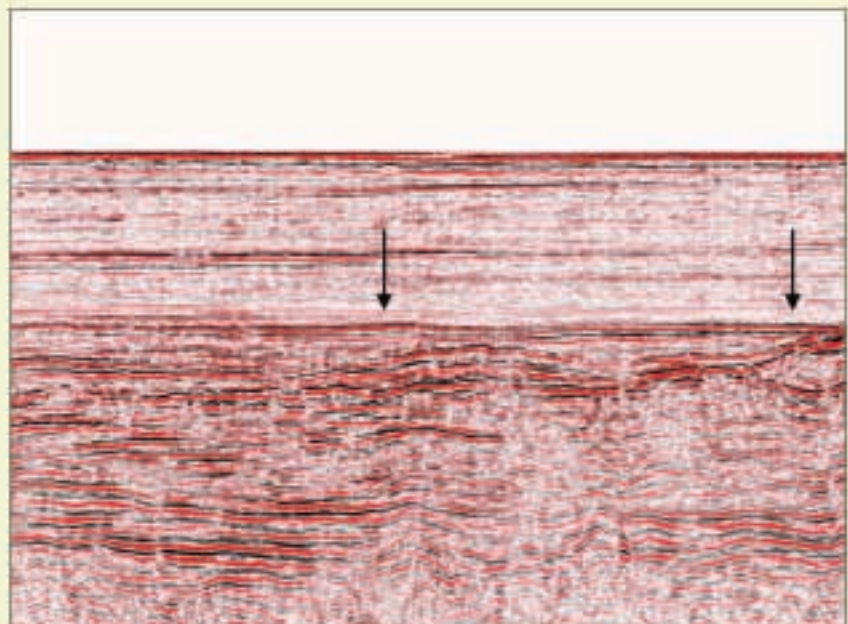
PERSPECTIVE OF DEPOSITIONAL "BUILD UP"



UNEXPLORED ROTATED FAULT BLOCKS



TYPICAL SALT STRUCTURE WITH FLANK BUILD UP (?)
(PROCESSED LINE)



AN ENORMOUS PINCHOUT PLAY

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President

from page 3

Constitutional amendment, which will require approval by AAPG members as well, given HoD approval.

* * *

After substantial constructive discussion, the EC decided that the proposed amendments outlining general principles for a graduated dues system were unsatisfactory because they were too generic and complex.

The preferred course was to appoint a special task force representing the HoD, AC and EC to investigate various graduated dues schemes, to model them financially, to conduct polls and surveys of the AAPG membership and to report their findings and recommendations back for action by the HoD and EC, so any amendments regarding a graduated dues system to be presented to the HoD in April 2007 would be clear as to implications and costs.

This decision by the Executive Committee was well-founded and unanimous – another example of the benefits of group wisdom.

* * *

So, as president, I proposed – and the Executive Committee approved at its Jan. 13-15 mid-year meeting – the formation of a Special Task Force (a “blue ribbon” ad hoc committee) to address various merits and implications of graduated dues systems, and to report their findings on Oct. 15, 2006. This committee is chaired by the chairman of the Advisory Council (Pat Gratton). Vice chairs are the chairman of the House of Delegates (Don Clarke) and president-elect of AAPG (Lee Billingsley).

Other members include past AAPG president Dan Smith, Larry Jones (HoD chairman-elect), Warren Workman (Canada Region), Jeff Lund (Gulf Coast Section), Chuck Caughey (ex-Asia-Pacific Region) and myself. Other knowledgeable AAPG members also will be consulted.

The committee already is hard at work; its first poll surveyed the attendees at AAPG’s annual Leadership Conference, held Feb. 10-12 in Galveston, Texas.

The subject of graduated dues also was an official discussion session at the Galveston conference, chaired by Pat Gratton, with talks by Mark Rubin, SPE’s executive director, on SPE’s experience, and Mary Fleming, SEG’s executive director, on SEG’s experience. The pros and cons of alternate schemes were discussed by the participants.

* * *

OK, so why is it so important for AAPG’s House of Delegates to approve these “vice presidential amendments” at their upcoming session at the Houston meeting? There are five compelling reasons:

✓ **AFFIRMATION** – Our international membership (recently declining) needs to know that they are a real part of AAPG, participating fully in governance of the Association and represented on the Executive Committee.

Over the past seven years they have been severely under-represented – only one international member has been elected to be an AAPG officer. Of 25 officers elected in that period, electoral parity would have suggested about eight, not one. Meanwhile, the House of Delegates elected two Canadians to be HoD chairs and to serve ex-officio on the

Executive Committee.

A new VP (Regions) would assure continued international representation on the EC.

✓ **TIMELINESS** – AAPG particularly needs a vibrant, expanding international membership during this present global energy transition. The globalization of the E&P Industry, once dominated by the United States, is happening very rapidly. Demographics indicate clearly that U.S. and Canadian membership is declining by retirements and mortality, and the number of young North American entry-level geoprofessionals is insufficient to replace them.

We must face facts: Most remaining oil and gas resources are not in the United States, so most material new-field exploration in the future will be international.

Even though there gradually will be less oil and gas produced in the United

States, E&P activities will certainly continue there – and AAPG will vigorously support its members who are engaged in such efforts. But the vast bulk of world oil reserves and resources is controlled by national oil companies, not private industry.

So the question is not whether E&P is going global; rather, the question is, will AAPG be a significant part of it?

A robust international membership is vital to AAPG’s future – and they need timely and tangible evidence that AAPG values their membership.

✓ **SERVICE TO MEMBERSHIP** – A very high priority of Pat Gratton’s administration last year, as well as my own, has emphasized the need for more effective liaison and service from Tulsa HQ to U.S. Sections as well as international Regions. Although we have made substantial progress, there is still need for further improvement.

With the proposed vice president (Regions) and vice president (Sections), there would always be elected officers on the Executive Committee to see that effective liaison and service was being provided by the Tulsa administrative staff, thus institutionalizing and reinforcing this important relationship.

All AAPG members would benefit from such an arrangement!

✓ **IMPLEMENTING OUR STRATEGIC PLAN** – Our Strategic Plan, shaped, prepared and finalized over the last two years by the Advisory Council and approved unanimously by more than 100 participants at the 2004 annual Leadership Conference, repeatedly emphasizes that AAPG will move toward a global association. Now we are talking about how we implement that mandate.

continued on next page

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Getting ready for Houston?

There's an easy way to beat the annual "registration rush" and save yourself a lot of money at the same time.

And while you're at it, there's also an easy way to do something good for science and for AAPG: Help as a volunteer judge for the technical sessions.

The AAPG Annual Convention and Exhibition will be held April 9-12 at the George R. Brown Convention Center in Houston. The meeting's theme is "Perfecting the Search – Delivering on Promises," a dynamic focus that will be examined and defined by eight concurrent oral sessions and the largest number of forums ever slated for an AAPG meeting.

Even though the meeting is a month away, registering now can help both you and AAPG.

It helps you because registering online before the March 31 deadline will save AAPG Active members \$70 in registration fees – and it will help you avoid the always-crowded onsite registration area.

Those who sign-up in advance of their arrival at the convention center can simply take their confirmation slip to one of the advance registration counters, scan the barcode and pick up



your registration packets.

(And those who can't register online before arriving in Houston can use the self-registering kiosks if paying by credit card.)

Remember, beginning April 5 you can register online for anything (including one-day registration and "exhibition only" passes) – a real time-saving feature.

Pre-registration helps AAPG and convention planners by providing a more-accurate estimate of attendees for

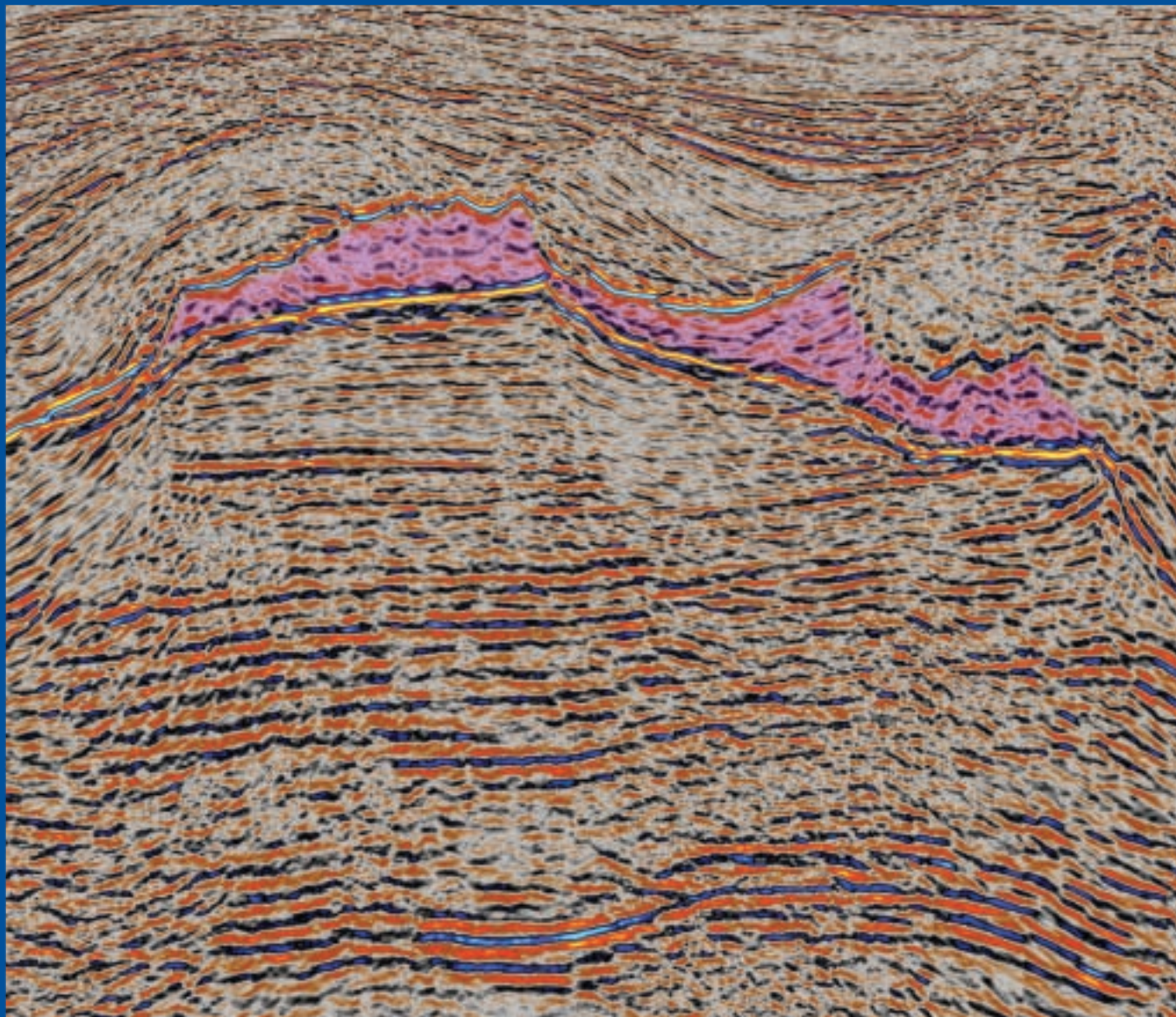
the four-day event – and by helping to eliminate the lines historically found at the registration area.

All registration information also can be found on page 89 of the convention announcement, or online at www.aapg.org/houston/registration.cfm.

Volunteer judges – always important and always needed at annual meetings – will get something more this year than the satisfaction of helping to ensure that excellent presentations and the best of AAPG's science are honored. In addition to a token of appreciation, day-long refreshments will be available in the judges' room.

Make this a win-win step for you and AAPG. Be a judge and sign-up now for savings in Houston. □

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continued from previous page

✓ **OUR FUTURE** – Much new geotechnology is exportable from North America (and therefore importable as well). AAPG can either embrace a global future, in which our international members play an increasingly large part (and Western geoscience plays a significant role for decades to come), or we can decide to follow the status quo and surrender AAPG's historical leadership to other societies, such as SPE, SEG and EAGE.

Personally, I believe it would be a disservice to AAPG members who still have five- to 35-year careers ahead of them – and a betrayal of AAPG's historical tradition of unbounded geoscience and professional prominence – to allow our Association to be eclipsed.

I think it is essential, to all our members, for AAPG to be a recognized presence in those world regions having the largest resources (Middle East, Russia, the Caspian) and most rapidly expanding economies (China, India).

* * *

So, is there a "downside" for U.S. AAPG members resulting from approval of the vice presidential amendments? None that I can visualize, and there is plenty of "upside," as already described.

Is there a "downside" for AAPG members that results from defeat of the proposed VP amendments? Yes, it would send a clear negative message to AAPG's entire international membership plus thousands of membership-eligible international geoscientists "waiting in the wings," and it would indicate that U.S. members do not support AAPG's Strategic Plan.

Is there an "upside?" None that I can think of.

* * *

Recommended reading: For the first time ever I am re-recommending an earlier book reference, because it is so timely and important: *The World Is Flat: A Brief History of the Twenty-First Century*, by Pulitzer Prize-winning writer Thomas L. Friedman, 2005.

The globalization processes Friedman describes are occurring to our E&P industry right now, and they will be profound. We cannot allow our Association to be left behind.

Read it, you'll like it!

Onward!

'Activity is Everywhere'

Seismic Crews Step Up the Pace

By LOUISE S. DURHAM
EXPLORER Correspondent

Surely, there's no more exciting industry than oil and gas.

And when a lengthy spell of high prices for commodities sets in, the excitement – and action – ratchets up considerably.

With revenues and profits way high, there's been more than a bit of complaining that companies aren't plowing enough of their ample cash into new drilling projects. Still, the drilling action already has revved up considerably, and a look at the current and planned level of seismic activity indicates the drill bits likely will continue spinning for some time yet.

"Across the whole seismic industry, you get the same answer," said Elaine Buck, marketing manager-North America at WesternGeco. "Activity is everywhere."

On the land side of the domestic arena, probably the hottest drilling play – the Barnett shale in the Fort Worth Basin – is sizzling with seismic activity.

"A third of all U.S. crews have been in the Barnett in the last year," said Gehrig Schultz, vice president-Eastern Hemisphere at PGS Onshore. "And we're starting to see activity in look-alike plays like the Fayetteville shale, the Palo Duro Basin (and) the Cherokee Basin in the Oklahoma-Kansas area."

"The jobs are small and fast in the Barnett," Schultz said. "And there's so many operators out there, you're jumping all over the place."

This may only be the beginning for Barnett seismic activity.

"Some say the Barnett goes all the way to El Paso," said Jim White, president of Quantum Geophysical, which focuses on land and transition zone and currently has 10 crews operating.

Quantum's parent company, Geokinetics, recently purchased Trace Energy – a sign that mergers in the seismic industry continue.

"Culberson and Reeves counties in far West Texas seem to be a new buzz word for seismic activity," White added, "and we'll probably see an uptick there."

Hot Targets

Schultz noted PGS' Wichita Mountain Front database is extremely active.

"There's a lot of deep gas exploration there," said Jim Bogardus, general manager of multi-client services at PGS Onshore. "Those are high profile wells and very expensive for domestic onshore. They're looking at big reserves and initial rates on those wells."

Bogardus noted the Rockies are big for seismic activity because of the proclivity for gas reserves.

But the area has drawbacks for the data gatherers.

"One thing that will restrict our opportunities in the Rockies is the environmental area," White said. "Every time we try to get work on a particular job, it's on federal lands, and there's so many environmental groups to impede seismic activity."

"You have to be cautious, because if you block out a five-month period to



seismic data gatherers.

"Chesapeake bought CNR and has committed to spending enormous amounts on E&P there over the next 2-3 years," White said. "This means seismic as well."

In the past this area was explored by regional players, and now the bigger companies are moving in.

"I think this is a hallmark of things to come," Bogardus said. "These companies need big reserves for investors, and they clearly think they're going to get the numbers they need in the Appalachians."

Gains in the Gulf

It comes as no surprise that the long-prolifically productive Gulf Coast is a hot area. Indeed, it offers a variety of opportunities for operators and data acquirers alike.

"We're starting to see Gulf Coast operators wanting longer offsets so they can do proper AVO at depth," Schultz said. "The area is heavily explored down to 15,000 feet, and they've been drilling deeper things, but they don't have the proper AVO at those depths."

Seismic shooting in the true transition zone, i.e., two miles either side of the beach, is rare these days because of the expense and because people are chasing other things, according to Steve Mitchell, vice president, division manager at Fairfield Industries.

But this is the jumping off place for

shoot seismic and two weeks prior they slap an injunction on you, you're stuck," White noted. "You can't go to work, and it causes havoc, so we're very selective on the work we're going after in the Rockies – I'm sure others are looking at the same scenario."

White noted seismic shooting is in high demand in Canada.

"Canada is hot for seismic acquisition, and one of the things taking place there now is that crews are hard to come by," White said. "Canada is seasonal, and this summer I expect to see more clients preparing work for doing it in the summertime because they didn't book their crews in the winter."

"This is different from the way you usually do business up there," White noted.

The Appalachians also are becoming increasingly alluring to operators, providing still more opportunity for the

See **Activity**, page 10

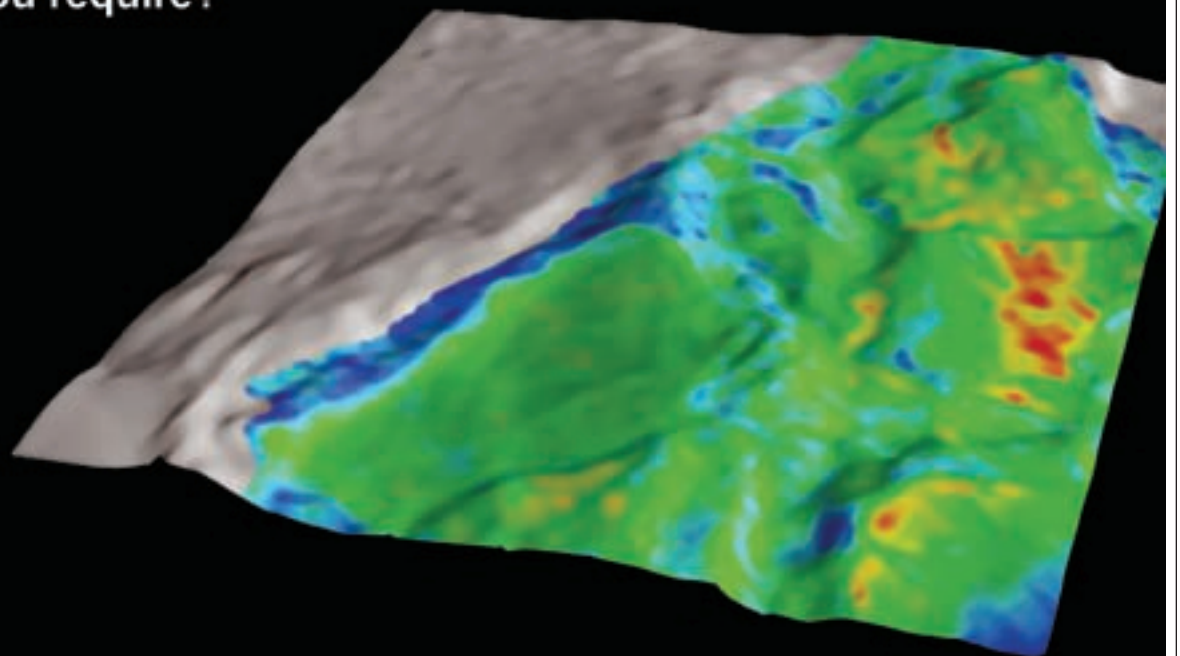
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Libya Joins the Hot Prospect List

If you're a seismic data contractor, don't even think about stopping to catch your breath. There's no time.

Demand for seismic crews is soaring not just in the United States but on the entire international scene as well, particularly on land. Major players, e.g., WesternGeco, CGG and BGP, are busy adding crews in Africa and the Middle East.

IHS Energy reported a breakdown of the world share of geophysical activity in a recent issue of its World Geophysical News:

- ✓ United States: 24 percent.
- ✓ Far East: 20 percent.
- ✓ Africa: 13 percent.

- ✓ Canada: 12 percent.
- ✓ CIS: 11 percent.
- ✓ Latin America: 10 percent.
- ✓ Middle East: 6 percent.
- ✓ Europe: 4 percent.

"We're seeing an increase in activity in all the regions," said Elaine Buck marketing manager-North America at WesternGeco, "specifically in Algeria, Libya and India."

Libya is on a lot of radar screens (see related story, page 12).

"The hottest thing now is Libya in specific," said Gehrig Schultz, vice president-Eastern Hemisphere of business development at PGS Onshore, "and North Africa in general. "Egypt went from a crew count of

three to six from June to now," Schultz said. "Libya has gone from June of '05 with 13 crews in the country to 25 or 26 today either operating or mobilizing in the country. Algeria is a similar picture.

"Last year in early February, we looked around Dubai where everyone had gear in warehouses, and there were 60 vibrators sitting in people's yards," Schultz noted. "Today, there's no available equipment in the region."

In fact, Schultz said, there's a six-month wait to rent the small IVI mini-vibes, which weigh only 12,000 pounds and go up to 250 Hz. They offer the ability to traverse streets and get close to houses.

— LOUISE S. DURHAM

Activity

from page 8

offshore, where things have definitely picked up in the past year. IHS Energy recently reported the offshore working crew count at 11 compared to seven a year ago.

Seismic data acquisition continues to be active in the shallow water deep gas play even though the jury's still out on just how good this play might be – despite some successful wells already reported.

The shallow water shelf, in fact, is where the big party is for the seismic companies.

"There's more shooting going on, more crews working the continental shelf in the shallow water portion from 250 feet of water depth to the beach than in the last several years," Mitchell said. "We've been shooting as hard this year as last year and the year before."

The closely watched deep shelf gas play Exxon Blackbeard well continues to drill toward an unprecedented 30,000 feet-plus target depth. A successful well at these depths could create a near-stampede for data.

"As soon as we see someone producing sub-30,000 feet," Bogardus said, "I think you'll see that just go wild."

Further out in the deepwater Gulf of Mexico, seismic activity appears to be on the upswing.

"We have two wide azimuth surveys scheduled for '06 in the Gulf," Buck said. "And we'll do another project using our over/under technique to improve subsalt imaging. We also have several multi-client projects scheduled for '06 in the Gulf."

(Buck said WesternGeco also has a multi-client shoot scheduled for the Permian Basin in 2006.)

At the Crossroads

Given that a number of the seismic companies are booked through this year and now contracting for 2007, there's concern about where this is headed in some instances.

"We're at a crossroads as an industry now," White said. "Do we increase the number of field crews to meet demand? You can buy equipment, but people are the big problem, so staffing and making it work will be the difficult part.

"As long as the oil companies continue to use lower numbers than current commodity prices in their deal evaluations," White said, "we'll still see these activity levels.

"We believe they still need to beef up drilling prospects, and to do this is going to take seismic."

In the marine sector there is some need for caution. The word on the street is that the pick up in new vessel construction has the potential to turn the current vessel shortage into an over-capacity situation rather quickly. □

Perth Program Nears Completion

The technical program for this year's AAPG International Conference and Exhibition in Perth, Australia, is being finalized and is expected to be available in April at the annual convention in Houston.

The meeting will be held Nov. 5-8, with the theme "Reunite Gondwana – Realize the Potential."

Organizers reported that a record number of abstracts – more than 750 – were received for consideration.

Information will be available online at www.aapg.org. □

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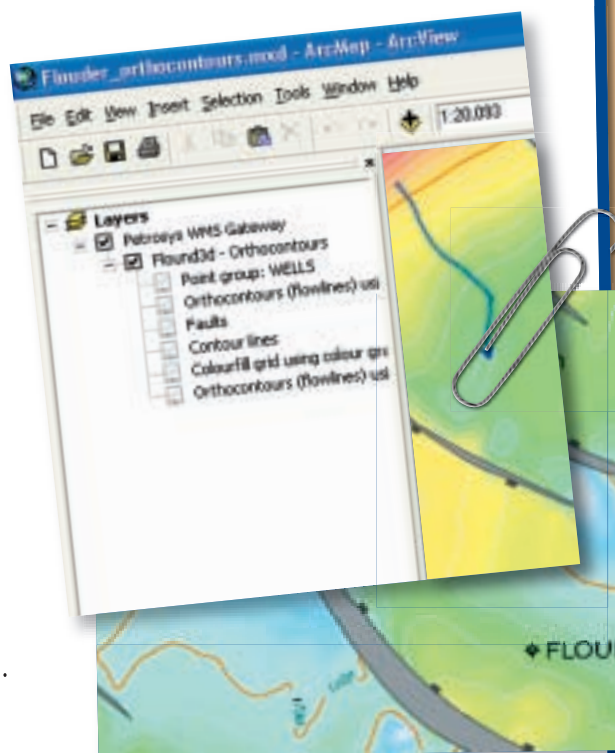
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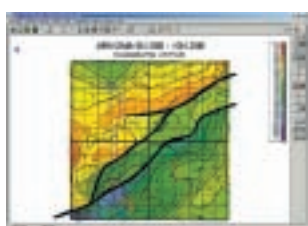
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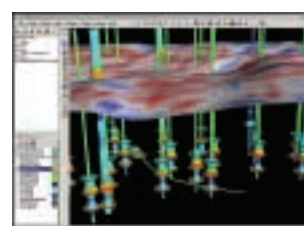
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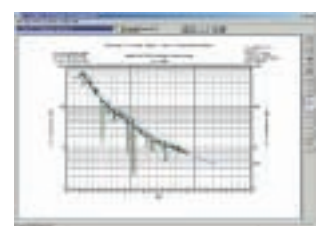
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Big Steps Taken, But Journey Continues

Libya Looking for Success Formula

By DAVID BROWN

EXPLORER Correspondent

Libya fell off the map for many exploration companies in the 1980s and '90s. Political roadblocks and unattractive licensing offers discouraged outside investment.

That changed with the lifting of United Nations-imposed sanctions in 2003 and most U.S. restrictions the following year, coupled with a move to clearer concession terms.

Today, this North African country with a Mediterranean climate couldn't be hotter for exploration.

Two successful licensing rounds in 2004-05 brought the global industry back to Libya, including heavyweights like ExxonMobil, Chevron, ConocoPhillips and Statoil.

Extensive seismic work that started late last year may unearth some promising new prospects, according to Don Hallett, a London-based geological consultant with experience in Libya.

"Libya is very backward technologically compared with areas like the North Sea," Hallett said. "They suffered from lack of investment and lack of access to modern equipment. As a result of that, there are a lot of opportunities to be exploited."

"For instance, 3-D seismic has not been extensively used in Libya," he noted. "That immediately opens up a whole new area of opportunity."

Shell EP Libya expects to acquire almost 8,000 square kilometers of 2-D seismic and 3,300 of 3-D seismic by mid-2007. In addition, Shell plans to

"You can't have the same old way of thinking (in Libya) if you are an exploration manager."



Photo courtesy of BGP International

The exploration doors are open again for Libya, which presents a huge potential but also plenty of challenges for seismic crews like the one pictured here.



capture 68,000 kilometers of aeromagnetic data.

The large-scale seismic acquisition effort going on in Libya right now also involves work by BGP International, PGS Exploration, WesternGeco and Veritas DGC.

Block Party

Libya's National Oil Company (NOC) hopes to increase the country's oil production to two million barrels/day within five years, a level not reached since 1979.

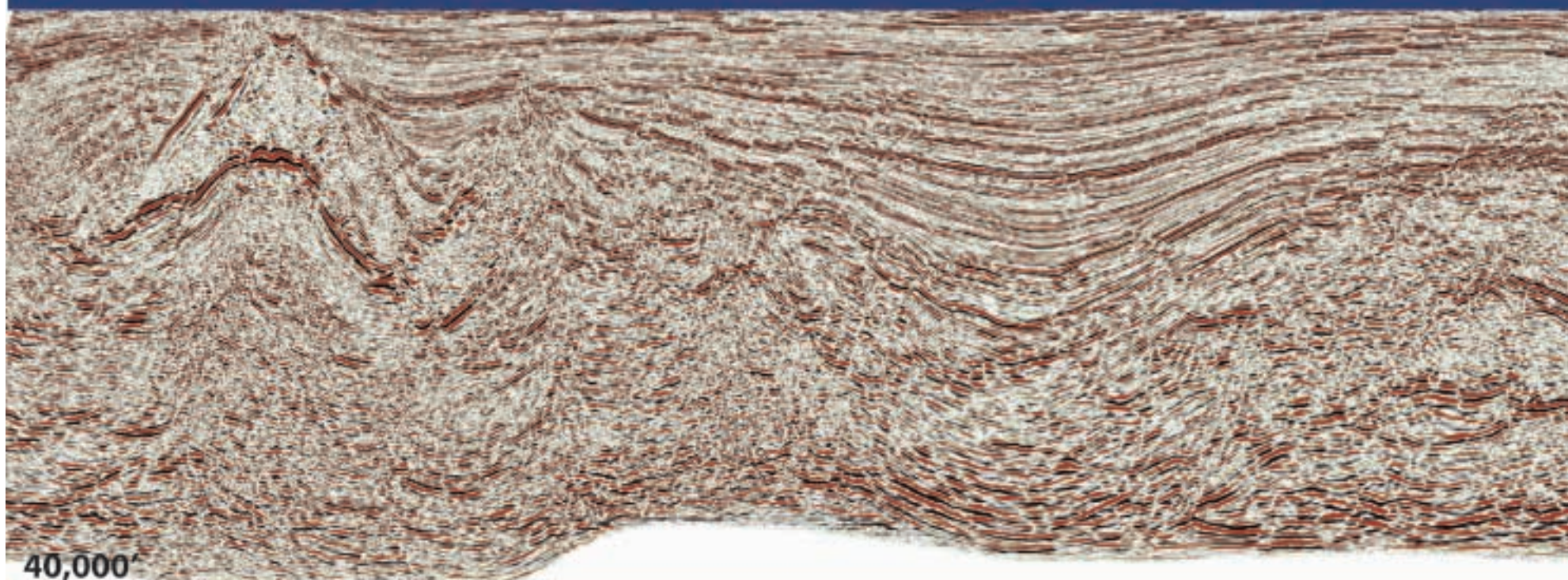
Oil accounts for 90-95 percent of Libya's total exports, much of it going to Europe.

Drawing on his decade of experience with a state-controlled

continued on next page

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Libyan oil company, Hallett wrote the book *Petroleum Geology of Libya*, published in 2002 by Elsevier Science.

Will the latest licensing rounds and seismic programs bring Libya back to prominent oil production?

Hallett is skeptical.

"Libya does have the largest reserves in Africa, larger than Nigeria," he said. "There's still lots to go for in Libya, but these latest offerings are not going to accomplish what NOC wants."

The problem, according to Hallett, involves the quality of acreage offered in Libya's last two licensing rounds.

Blocks become available in Libya under Exploration and Production-Sharing Agreements (EPSA). The country has gone through several EPSA variations and adjustments.

Its largest-ever offering of 135 blocks occurred in 2000 under EPSA-3 guidelines, Hallett noted.

"They spent a lot of time and effort, and they were only successful in the end in licensing 23 of those blocks," he said.

NOC then initiated a new round under EPSA-4 in 2004, offering 15 blocks of one degree latitude by one degree longitude.

Companies could bid on a cost-recovery basis, with signature bonuses required, Hallett said. NOC set predetermined work programs and minimum expenditure levels on each block.

"They had a tremendous response to that. They got rid of all 15 blocks – and frankly, those blocks have high-risk, frontier acreage," Hallett observed.

"NOC has declared its objective to increase production to two million barrels a day by 2010 and to end the depletion of reserves.

"This is not likely, especially in regard to reversing the depletion of reserves," he added.

A Trap Play?

The second EPSA-4 round in 2005 offered 29 licenses covering 44 smaller blocks, Hallett said. NOC approved bids on 40 of those blocks.

Most of the companies winning licenses were European or Asian, with ENI and Statoil each acquiring eight

blocks. NOC expected to receive more than \$100 million in cash signature grants from that round.

EPSA-4 has included some areas formerly assigned to Libya's state-controlled development companies, according to Hallett.

"The whole shift has moved away from these state oil companies, now that they have been sidelined by NOC," he said, although they may control as much as 40 percent of Libya's reserves.

Reserve estimates should be

considered fluid, with most estimates of Libya's proved oil reserves falling between 35 billion and 40 billion barrels.

Hallett said NOC puts reserves at 38 billion barrels, which he called "very optimistic, indeed."

Muhammad Ibrahim heads the Target Exploration consulting group in London. He also doubts that seismic acquisition can generate the results Libya wants.

"Seismic is not the solution. You're going to spend a lot of time and money on seismic," he said.

Ibrahim has extensive experience in Libya, working first with Mobil and then Veba Oel. He discussed some potential prospects in Libya at the 2005 AAPG annual meeting in Calgary, Canada, in his paper "Unconformity Traps Potential of Sirte Basin, Libya."

Sirte contains about 80 percent of Libya's known reserves and accounts for 90 percent of the country's oil production, according to the U.S. Energy Information Agency.

Ibrahim, like Hallett, believes Libya still holds abundant opportunity for exploration.

"We all left something behind," Ibrahim said.

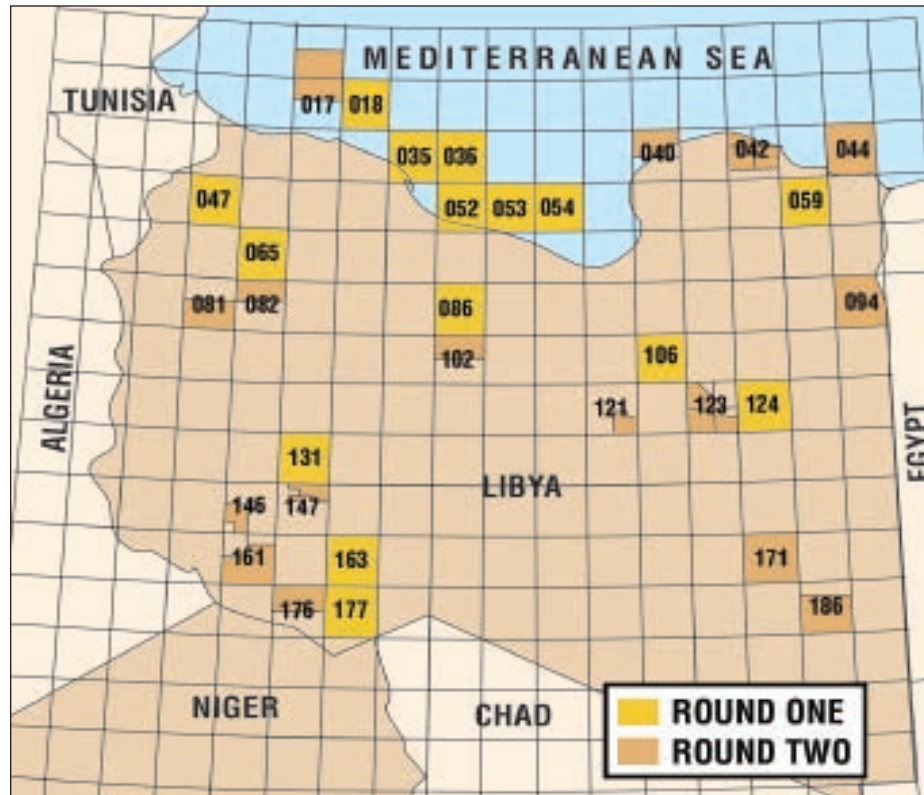
"We have had a problem exploring stratigraphic traps there," he added, "and I think there are a number of stratigraphic traps left to explore."

Virgin Territory

Successful exploration in Libya probably will require a 21st century exploration approach instead of 20th century methods.

Ibrahim said earlier explorers would abandon a play if they drilled the top of a structure through to basement,

See **Libya**, next page



Blocks became available in Libya under the Exploration and Production Agreements program. Round one in 2004 brought bids on all 15 blocks that were offered, and round two in 2005 brought 29 bids on 44 blocks. Estimates of Libya's proved oil reserves are between 35 billion and 40 billion barrels.



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✓ **James Markello**, who is speaking on "The Carbonate Analogs Through Time Hypothesis – A Systematic and Predictive Look at Phanerozoic Carbonate Reservoirs" and "Integrated Research for Carbonate Reservoirs," completes a western North American tour on March 10.

✓ **Rebecca Latimer** (AAPG/SEG Joint Lecturer), speaking on "Uses, Abuses, and Examples of Seismic-Derived Acoustic Impedance Data: What Does the Interpreter Need to Know?" on a March 6-17 tour.

✓ **Janok P. Bhattacharya**, speaking on "Applying Deltaic and Shallow

Marine Outcrop Analogs to the Subsurface" and "Martian River Deltas and the Origin of Life," on a March 13-24 tour.

✓ **Steve Larter**, speaking on "From Deep Water Exploration to Tar Sand Production: Bugs, Biodegradation and the Origin of Heavy Oil," on a March 20-31 tour.

✓ **Peter B. Flemings**, speaking on "Overpressure, Hydrocarbon Entrapment, Seafloor Venting and Slope Stability: The Dynamic Flow Regime Beneath the Seafloor," on a March 27-April 7 tour.

For information on their tours contact the AAPG Web site at www.aapg.org. □

Libya

from previous page

instead of going down the side of the structure to find the pinch-out trap.

In that regard, much of Libya could be described as lightly explored.

"Look at it from a historical point of view. We did not pursue some prospects that were far away in the desert," Ibrahim observed.

"And, looking at the distribution of the exploratory wells, you can see that people only drilled two or three wells and then moved on," he said.

Based on their experience, observations and knowledge of the local geology, Ibrahim and Hallett each identified the same area of Libya as most promising.

"My conclusion is that if we're going to find a giant, it's probably going to be offshore," Ibrahim said.

Except for one limited area of production, "the rest of the offshore is fairly underexplored, and there are opportunities there – some next-play concepts that haven't been tried," Hallett agreed.

Relearning Process

The industry considers much of the offshore gas-prone, and Libya may become known for gas exports as well as oil production.

Libya was the second country in the world to export LNG, but could not maintain the technical expertise and equipment to continue large-scale production.

Now several countries want to re-establish LNG as a major export.

Shell's current seismic work supports a gas exploration and production program tied to LNG.

Much exploration activity still targets oil, and Hallett said Libya continues to be attractive "in the sense that it is close to European markets, in the sense that it has good-quality crude."

Ibrahim sees Libya as an attractive place for explorers to work and live, as well.

"Libya actually is a holiday compared to some other places in the world," he said. "The weather is kind and the beaches are fantastic. The food is fresh and nice, and the air is clean," he said.

Companies re-entering Libya should be aware of the many changes that have taken place in the country's oil industry, Hallett said.

State-controlled oil companies still hold a large amount of prospective acreage in Libya, but "there's been a big transformation in the way exploration has been handled in the past few years," he observed.

Despite the good response to EPSA-4, he doesn't consider the latest licensing rounds especially favorable to the industry.

Hallett said more promising results would come from three additional moves by Libya:

✓ Offering better acreage in future licensing rounds.

✓ Opening the possibility of joint ventures.

✓ Allowing outside investment in field rehabilitation projects.

NOC reportedly will offer a third EPSA-4 round in 2006, and may open up some known but untapped oil accumulations to development by foreign companies.

New exploration probably won't begin in earnest until the 2006-07 seismic programs are completed and evaluated. Statoil said it expects to drill the first exploration tests on its blocks no earlier than 2008.

Companies absent from Libya for decades will go through a relearning process, with little experience to draw on.

"The old hands who taught me are either retired or dead. There has been a gap in passing the knowledge," Ibrahim said.

He thinks exploration success in Libya will require "a new way of thinking," with approaches different from the ones major oil companies tried earlier.

"You can't have the same old way of thinking (in Libya) if you are an exploration manager. And that's true of several countries in the Middle East," he said.

"Everybody is going to come back with their background and try to apply it," he said. "But Libya is a very difficult country to explore." □

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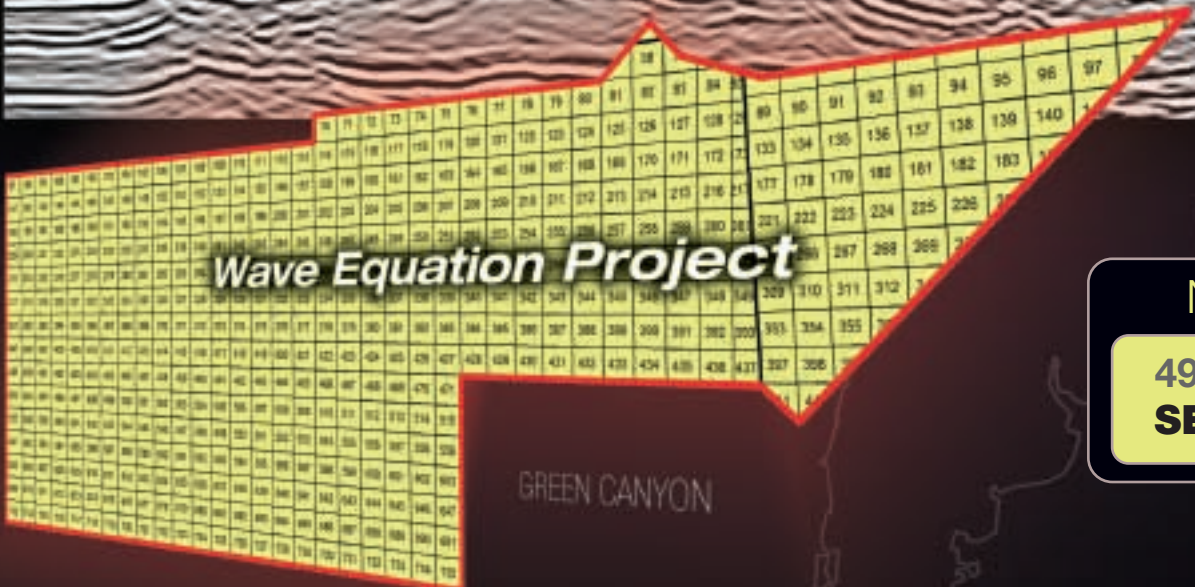
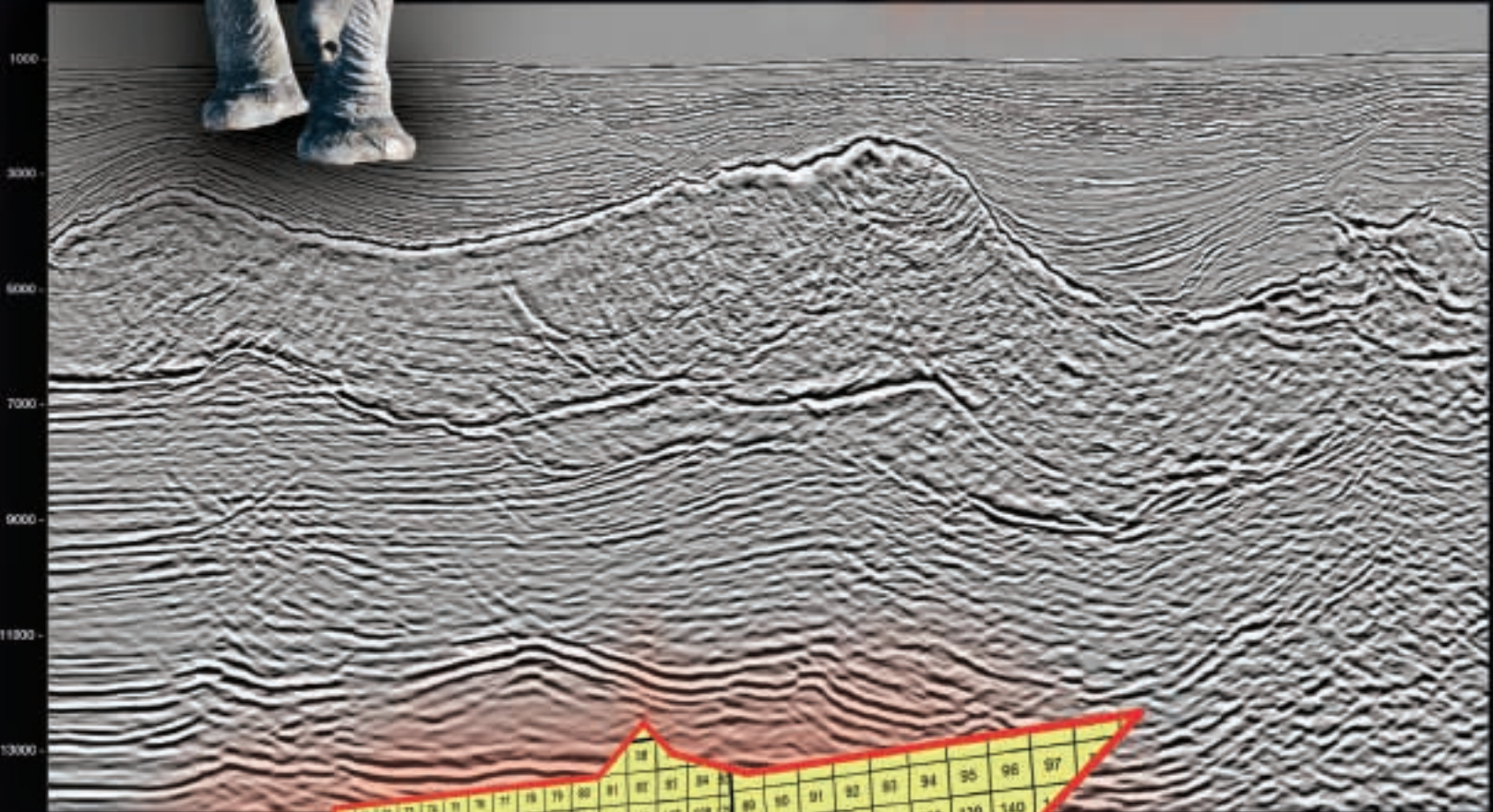


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All-Azimuth Illuminating

Node Patch Takes Bottom Readings

By LOUISE S. DURHAM
EXPLORER Correspondent

Operators continue to grapple with how best to image the vast number of complex reservoirs lying beneath the Gulf of Mexico's salt bodies.

Those ubiquitous salt masses distort seismic signals, resulting in an inferior image.

The latest hoped-for solution appears to be all-azimuth illumination, using ocean bottom seismic technology that can acquire full, or true wide azimuth seismic data by recording in all directions.

This is in contrast to conventional streamers, which routinely record narrow azimuth data with a single illumination direction or else re-shoot in several directions to acquire additional azimuth data – a pricey undertaking.

Some industry experts envision the future for deepwater subsalt imaging lies in ocean bottom seismic systems using autonomous nodes.

In fact, nodal seabed technology will be featured in a special session at this year's Offshore Technology Conference in Houston, May 1-4, on "The Development of Deepwater Ocean Bottom Seismic – Definition to Execution."

The commercial viability of nodal seismic technology is slated to be documented in the results of the ongoing project between Fairfield Industries – its new Z system is designed to work in water depths down to 3,000 meters – and deepwater GOM veteran BP at BP-operated Atlantis field, one of the largest finds in the Gulf.

The program kicked off last October and is anticipated to conclude in early March, to be followed by several months of processing in-house at BP.



Above, the back deck area with the Z3000 nodes awaiting placement by the ROV, seen here attached to its Tether Management System (TMS).

Left, A Z3000 node being positioned on the sea floor by the suction arm of the ROV.

Photos courtesy of Fairfield Industries

"We were ready to go nodal in shallow water, and then BP came along," said Steve Mitchell, vice president, division manager at Fairfield, "and it was not a problem to change the focus to deep."

"We were both already at the point of realizing nodes are the thing of the future even though we got there from different directions," Mitchell said. "The light bulb had already gone off at both companies separately."

Two Objectives

BP had wrestled with the illumination issue at a number of its fields and quickly recognized the problem would be there as long as they continued to play the subsalt.

"We've had a long-lived R&D effort to look at imaging problems in the subsalt area of our development," said Jerry Beaudoin, project manager for deepwater OBS technology at BP. "Once we came to the conclusion that it's an illumination problem, we concluded the way to solve it was through collecting a new class of data that we could process internally with our own algorithms."

Given the tendency these days for E&P companies to depend on the service side of the business to develop and fund – and prove – new technologies, the Atlantis venture is particularly noteworthy.

"The oil companies have been slashing R&D and counting on the contractors more and more to pick it up, and we have," Mitchell said. "But BP was willing to help pick it up."

See **Nodals**, page 18

Midland Valley

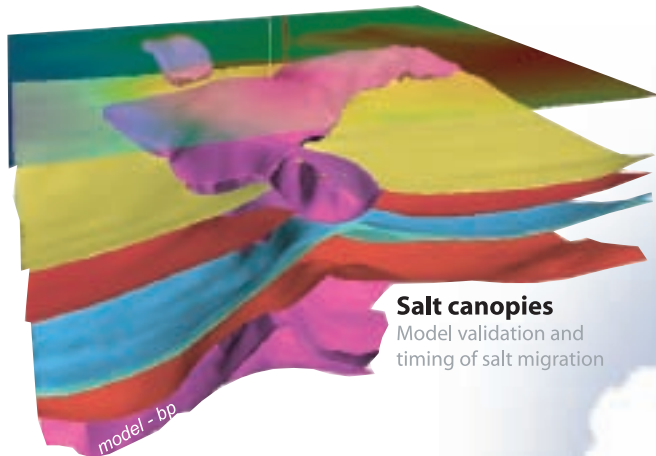
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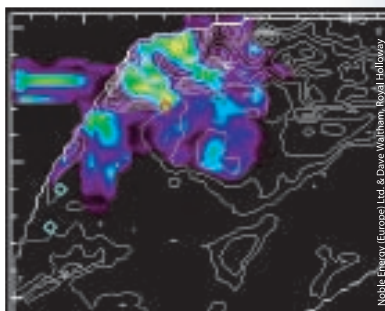
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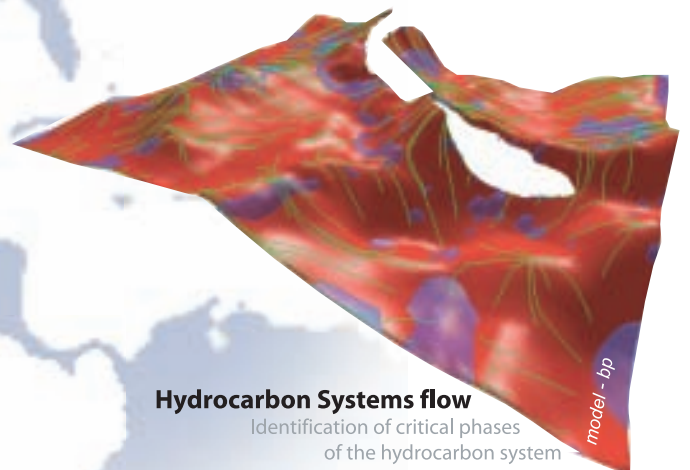
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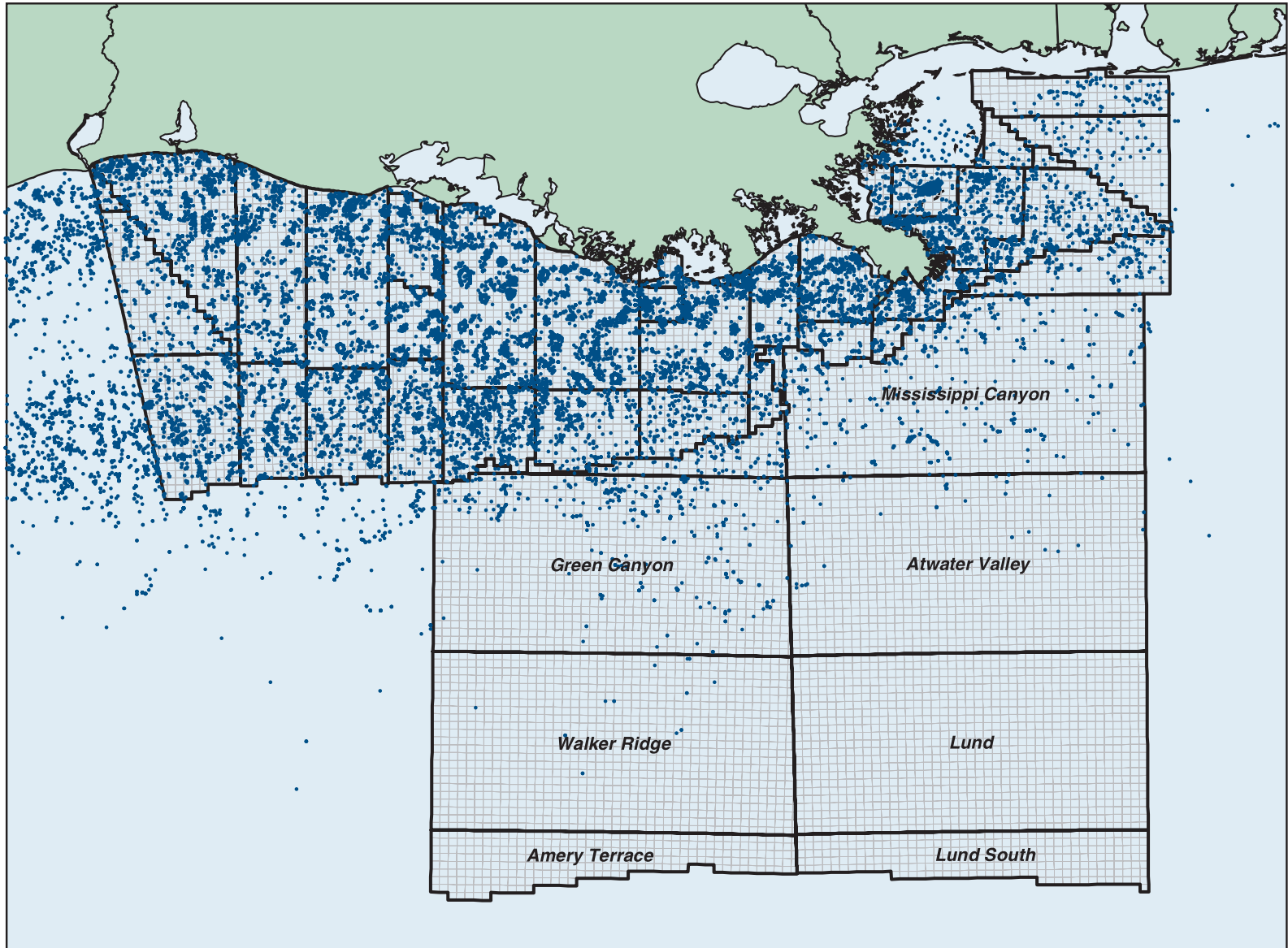
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Nodals

from page 16

Indeed, the E&P giant and its Atlantis field partner, BHPB, stepped up to the plate with big bucks, picking up a goodly portion of the tab for the 900 nodes Fairfield built to deploy at Atlantis.

The program, which encompasses 240 square kilometers in water depths between 1,400 and 2,200 meters, is defined as an "at-scale" field trial of the technology.

"We're doing it at a scale that makes sense," Beaudoin said. "This means we have to have it across the entire field, not just do a little patch and say 'oh, it works.' We're gathering a data set that will be useful in the commercial development of Atlantis.

"The north flank is the primary objective where we think this will make the biggest

difference, because we can't see it," Beaudoin said. "But even the crest is partially obscured because it's right under the lip of the salt, so we think we can improve the imaging there as well."

A secondary objective is to understand how this class of data stacks up against regular streamer data outboard from salt. Coverage of the south flank will allow the opportunity to compare the wide azimuth nodal data with the earlier streamer data acquired there.

The initial phase of the two-phase nodal acquisition program at Atlantis is complete, and early peeks at the data reveal the quality looks quite good. The imaging process will get under way once all the data are in from the initial phase.

"We broke the survey into two pieces because it's bigger than we could cover in just one bite," said Allan Ross, seismic operations manager at BP. "It would have been just too costly to build enough nodes to cover the whole field at one time.

"In the first patch, all 900 nodes were used," Ross said. "We deployed them and shot, retrieved, recharged, recalibrated, refreshed them and are putting them down on the second patch now.

"Generally, this is far more cost-effective than OBC (ocean bottom cables), where you cover a limited area at one time," Ross said. "We're covering a much larger area in one fell swoop—130 square kilometers in the first patch and 110 in the second. That's a significant ocean bottom survey, and the fact it can be done in just two patches is a significant development commercially."

Each autonomous node is a self-contained sensor with batteries and a highly accurate clock. The cable-free pods are deployed on the seabed and later retrieved by an ROV to download the data acquired and recharge the batteries.

Challenging Environments

Their reliability gets high marks,

according to BP consultant Graham Openshaw.

"It's tricky going from six prototypes to 900 operational units, and the biggest win here is the incredible reliability," Openshaw said. "There were only two failures out of 900 deployed, which is unprecedented in the difficult business of deploying new deepwater technology.

"Once they're on the seabed, they're eating batteries so you have only so many days to get shots into them," Openshaw said, "which is really challenging this time of year."

For example, think days with 20-foot seas and 70 mph wind gusts.

The accuracy of positioning the nodes in the deep water and the navigation system, both under the aegis of Geo Century, grab another thumbs-up.

"We solved the problems of putting receivers all over the Sigsbee escarpment, which is a really complex area to work," Openshaw said. "There's 2,000 feet of scarp slope with gradients up to 30 degrees-plus, which makes it difficult to find locations on the slope of less than 10 degrees to put receivers down and position them accurately with the ROVs," he said. "But it's been very successful."

Project participants took a calculated risk the advanced Ultra Short Base Line navigation system would be adequate—and reportedly it is, providing previously unachievable accuracies in deep water.

One of the achievements in putting down 900 nodes in the first patch was locating all of them on the return to pick them up. There was no long base line array in place.

Diversity Helps

Another crucial supporting technology at Atlantis is the innovative deck handling system.

"One of the requirements in designing the project was that the 200-pound nodes be handled without overhead swinging cranes, and they be handled with as much automation as possible," Ross noted.

"Fairfield found a Michelangelo of metal and hydraulics in Louisiana who sketched out the deck handling system and built it," he said. "It's a beautiful piece of work; the quality and craftsmanship is superb."

Another noteworthy aspect of the project is the time frame.

Given the urgency of the illumination problem, BP set out to deliberately accelerate the pace of innovation. The time from the proposal of the wide azimuth project to the completion of the 3-D node survey spans less than six years, according to Beaudoin. Earlier application of a successful wide azimuth survey greatly increases the value of the seismic data for field development.

"We deliberately picked a challenging place," said Beaudoin, who noted the overlying salt mass at Atlantis is very complex. "It's a real life example where the technology will make a difference commercially."

The synergy between the two principals played a key role in ensuring the program progressed swiftly and smoothly.

"When you consider the vastly different size of Fairfield and BP," Mitchell said, "it was fascinating watching the two of us being able to communicate and deal with each other within the separate corporate structures.

"We had to learn each other's ways and style, which neither could have done alone," Mitchell noted. "It was a good match, absolutely.

"The diversity of the organization in the long run was a benefit because we were each able to recognize the other's strengths and pull on that.

"And if the results are as hoped and anticipated," Mitchell said, "an entire new business model will be under way for us."

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'That's What We Do'

Good Deeds in the Midst of Disaster

By LARRY NATION

AAPG Communications Director

Al DuVernay is "New Orleans" to the bone. He was born there, raised there, graduated from the University of New Orleans and has been based in the Crescent City for his 27 years working as a paleontologist for Shell Oil.

When Hurricane Katrina was roaring toward his town late last August, DuVernay stayed put.

"Evacuation was not an option," he said. "It is indeed foolish to go toe-to-toe with Mother Nature, but that's the old south Louisiana culture. If you stay behind, you might be able to help out.

"I know it's hard to understand," he added. "But that's what we do."

So he prepared his vintage New Orleans "camel back" house (some of the living area is a second story above the garage and workshop) in the Lakeview area, south of Lake Pontchartrain, situated two-and-a-half feet below sea level with leveed drainage canals to the east and west.

He was organized as he could be. Extra batteries were handy, as were tools, rescue paraphernalia, food and bottled water.

He also had geared and gassed up his 16-foot aluminum flat boat, what he called a standard Louisiana fishing boat, which has an 85-horsepower motor and is handy for the shallow, marshy areas.

The "plan" assumes the boat can be used if the water gets too high – and cooperates by rising slowly. The plan had been in place for every storm since Betsy in 1965, but had not been fully implemented – until Katrina. And there had been some hellacious storms since then.

His 85-year-old U.S. Navy veteran father came over to DuVernay's house and they hunkered down. About 3 a.m., Katrina hit with full Category 3 force.

"It was the most impressive storm I've ever experienced," he said, remembering the sounds of



When Hurricane Katrina left parts of New Orleans flooded and isolated, AAPG member Al DuVernay became part of the effort to rescue those who were stranded.

Photo courtesy of Chris Graythen

75-foot-tall pine trees splitting and huge oak and cypress trees being uprooted as the wind-powered rain slapped the house in waves.

As daylight broke, everything was seemingly fine, DuVernay said, although there was a lot of tree and roof debris littering the neighborhood. There was no electricity, cell phone usage was minimal and radio reports were rumor and conjecture – at best.

Water was about two-feet deep in the street, flowing south to north toward Lake Pontchartrain, the way it always did after a major storm.

Eerily, the water stopped. A moment of quiet. Then it started flowing the other way.

"I knew something had changed," he recalled. "Maybe the levee had been topped."

'An Unreal Situation'

It was worse. The levee was breached. The water began to rise – and kept on rising, over the curb, over the steps, into the house. The water went from ankle deep to waist deep in about an hour. Excruciatingly.

DuVernay floated his boat out of the garage and, as the waters continued to rise, helped his dad and their two dogs from the second-story window into the boat, and they motored the "standard Louisiana fishing boat" through the floating debris, power lines and treetops – an urban kind of Louisiana swamp – toward higher ground.

As they navigated about a mile toward dry land, they picked up some stranded neighbors who were wading in neck-deep waters or clinging to floating furniture, roof gutters and windowsills.

Getting his dad safely to his home that night, DuVernay and a buddy got a few hours rest, then headed his boat back into the flooded neighborhood.

He would be making this trip dozens of times over

See **DuVernay**, page 22

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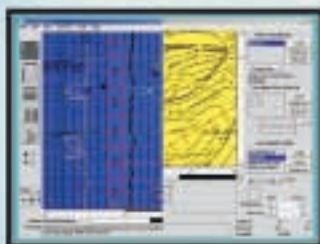
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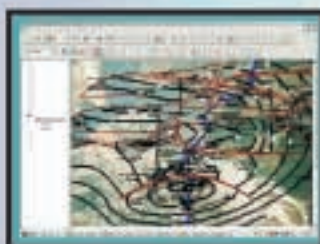
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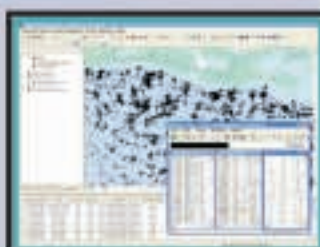
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*Activities Resume Amidst Rebuilding***NOGS Is Weathering the Storm**

By LARRY NATION

AAPG Communications Director

The gathering of about 70 at the first official meeting of the New Orleans Geological Society in early February was like a Band of Brothers meeting back at the camp after a battle.

They were glad to greet each other, but there was little "up front" talk of their experiences – that's because there is always someone you may be talking to who had more horrific experiences than you did. And everyone already knew the dreadful facts anyway.

But eventually the conversations at NOGS turned to the experiences of

flooding, losses, displacement, clean up, finding craftsmen for repairs – and insurance ordeals.

With many of their personal lives in disarray and their professional lives still demanding, NOGS President Bret Hampton announced to the group that the NOGS board had deferred hosting of the scheduled 2008 AAPG Annual Convention in New Orleans until a later year.

Five months after Katrina, the city still faces a daunting recovery with many basic services, such as electricity, hospitals, postal service, local transportation and air service remaining non-existent or curtailed.

"I am acutely aware that the

postponement appears to be at odds with the rebuilding of NOGS or New Orleans, but we must maintain a long-term perspective on the rebuilding," Hampton said. "Hosting an inferior convention is not in the long-term best interest of NOGS or New Orleans."

"I can only hope that the pain of deferring the convention will motivate NOGS to host a phenomenal convention at a later date."

Hampton also turned the gavel over to Scott Wainwright, since Hampton has been transferred permanently to Houston by his employer, Shell. (Shell accelerated a planned move of the deepwater Gulf group

to Houston.)

A number of NOGS members were still displaced in early February, with temporary offices in Houston, Baton Rouge, Covington and Lafayette. A pre-Katrina NOGS meeting drew about 100.

Meanwhile, the city was cheered by the return of about 400 Shell employees moving back to their New Orleans' offices in early February, with a homecoming of a like number again expected in early March. ChevronTexaco also is repopulating its Crescent City offices. Dominion is also coming back despite devastating damages to their offices.

NOGS has adopted the New Orleans' mantra of "Rebuild, Rebuild, Rebuild." With office manager Annette Hudson as the center of gravity for the group, NOGS has held numerous meetings via conference calls, redone its Web site, held a holiday social to reconnect, published a newsletter, and held a "kickoff party" to celebrate the Mardi Gras season. A golf tournament is planned and programs are set for future meetings.

NOGS has taken its lumps but is still standing – and, as Wainwright said, is looking positively to the future.

Some of that future is bright.

And, as every NOGS member is aware, the future also includes the next hurricane season – which begins in 90 days. □

DuVernay

from page 20

the next day or so.

Seeing stranded people on their roofs and in their second-story rooms, he would pick them up and ferry them back to dry land.

Some would swim out to the boat, some would call from their perch in a treetop. Despite the dire and life-threatening circumstances "There was no panicky moment," DuVernay recalled.

If the boat was full, DuVernay would tell the stranded to hang on – he'd be back.

"Everyone was very calm, if not stunned," he said. "It was an unreal situation. People were happy to wait their turn."

"The salty water was full of sewage along with everything everyone keeps in their garage – paint, solvents, pesticides, gasoline, oil and junk. It was a corrosive soup," DuVernay said.

Good Samaritans

As he motored back to the neighborhood, volunteers would sometimes accompany him in his fishing boat to provide assistance. One of the helpers was a freelance photographer dispatched by the *Times-Picayune* newspaper, and took photos that hit the world newswires. One of the photos he took of DuVernay rescuing a dog made National Geographic's top Ten News Photos of 2005. Sometimes DuVernay and his helper would come across a derelict boat floating in the muck and commandeer it, forming an ersatz "rescue fleet."

"It was a civilian rescue effort," DuVernay said. "We would drop off our passengers on dry land and there would be private vehicles that began waiting for us at the drop off area. One woman set up a lean-to out of plastic and would take care of the dogs. There were a lot of pets that got rescued."

"Civilians would just take care of their

See **New Orleans**, page 31

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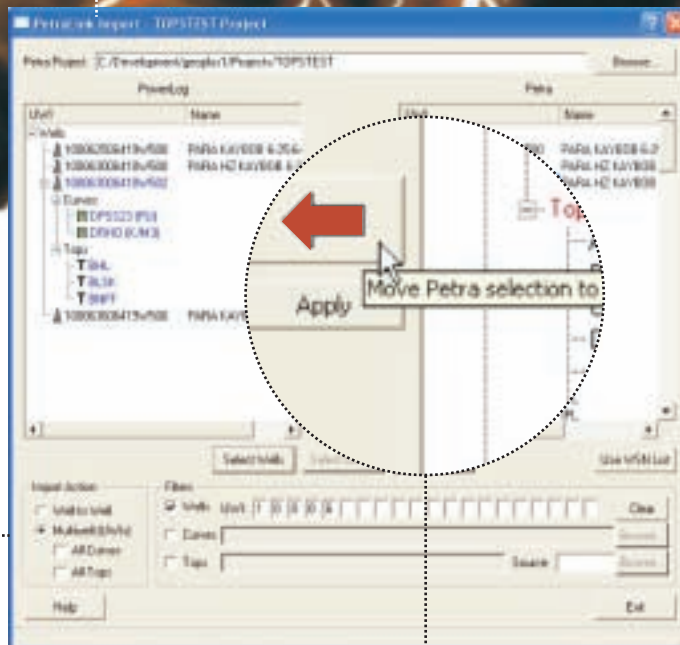
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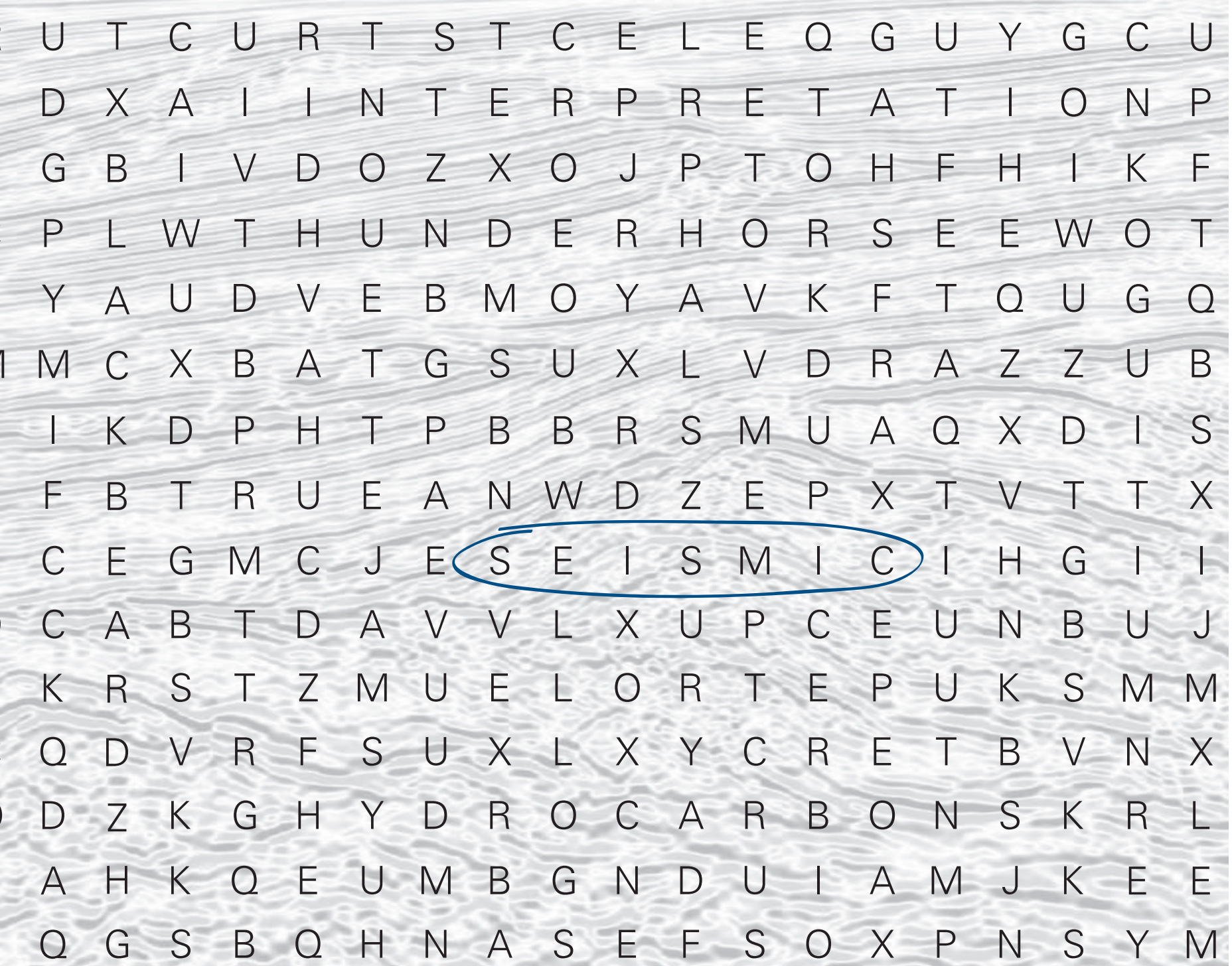
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If It Happens, It's Not Hype **NAPE Lives Up To Expectations**

By LOUISE S. DURHAM
EXPLORER Correspondent

Upbeat, exciting, huge.
You get the picture.

We're talking February 2006 NAPE in Houston. The increasingly popular prospect expo maxed out with a record-setting 12,750 attendees, making it the granddaddy of all NAPE get-togethers thus far.

"The atmosphere was electric on the floor of the George R. Brown Convention Center," said attendee Gerrit Wind of Wind & Associates. "There was a lot of buzz in the air, a lot of people talking and a lot of people at the booths."

The expo was sponsored by the American Association of Professional Landmen (AAPL), where it originated, and its NAPE partners, AAPG, SEG and IPAA.

"NAPE is an exciting mix of the business, networking and hype," said Rick Fritz, AAPG executive director. "It is one of the few exhibitions where land meets the seas of geology and geophysics."

Fritz said it was exciting for AAPG to be part of such a large and dynamic event that will help define the industry's exploration future.

"The most common phrase I heard around the hall was, 'Well, the Lord gave us another boom – now, what did we say we were not going to do with it?'"

"AAPG is happy to be a partner in this event," he said. "It is a good complement to the mix of science, technology and business at our annual meeting. We see it as a real service to our members and the petroleum industry."

AAPG President Pete Rose was among the thousands at NAPE, and the event's electrifying activity gave him plenty of reasons to smile.

"I'm so proud that we're part of it," Rose said. "We are a scientific and professional association, and our involvement with NAPE is a service to our profession."

"Just like we facilitate science, we facilitate the fruits of scientific work in the geologic marketplace," he continued. "This dual function – science and implementation of science – is what distinguishes us from other associations."

Rose praised Fritz and AAPG past president Steven Sonnenberg "for having the vision and determination to make this happen for AAPG – we're serving our members."

He also said the event was evidence that with "the existence of a vital, free market ... investment capital will flow."

"Adam Smith would have loved it," he said. "Deals were being made."

The Big Picture

Day One of the big event featured an international forum on "International E&P Business Dynamics: Implications for IOCs," a two-part session moderated by Pete Stark, vice president of IHS industry relations.

The session kicked off with the IHS International Strategic Issues Panel, followed by an Industry Executive Panel and presentations on a variety of topics, including the challenges a small start-up independent faces in international E&P and the challenges of international growth for a large independent.

An International Prospect Promotion Forum dominated the afternoon agenda.

Wind noted the international forum overall was jam-packed with attendees.

An array of service company vendors were ensconced alongside the smorgasbord of drilling prospects available for sale in the prospect exhibit hall. And the capital providers turned out en masse – a testimony to prosperous times in the industry.

The global aspect of the NAPE confab was evident among the prospects.

"The international portion broadened it into more of a worldwide scope," Wind noted, "with everything from Australia to Canada and all points in between. It was interesting to see a Kazakhstan prospect next to one from Italy, and then one row over to have Liberty County (Texas) prospects and then some from the Louisiana parishes."

Not surprisingly, prospects from the highly productive states of Louisiana and Texas appeared to dominate the show.

'Really Hectic'

Given the throngs in the exhibit hall and their enthusiasm, the prospect vendors were a happy lot.

"There are crowds of people viewing the prospects," said Dan Smith, vice president of exploration at Sandalwood Oil & Gas. "At times, we had crowds several-people deep at our booth; it got really hectic."

Sandalwood was showing three prospects in South Louisiana. But they're deep and pricey – not the kind of deal where the viewer pulls out the checkbook on the spot.

"They want to do due diligence," Smith noted, "come by the office and get on the workstation."

Typical of these times when the once-unconventional plays are becoming conventional, there were a number of shale prospects on view.

In fact, some viewers considered the best prospects to be in the unconventional category. But comments abounded that the best of them were not for sale.

"There are a lot of hot plays that are not being shown," said Chip Clark, landman at Hunt Oil Co., which was showing Gulf of Mexico opportunities. "But the networking can't be beat."

Kirk Clem, a geologist at Swift Energy, concurred: "You meet and see people you don't see in any other setting," he said.

It's become commonplace to find new companies in the midst of the prospect exhibitors, and this year was no exception.

"I saw a lot of people who have formed companies amongst themselves who used to work together," Wind said. "They've picked up acreage, either domestic or foreign, and that's fun to see."

Rose and Fritz's enthusiasm was matched at AAPL.

"Based on what I heard, a lot of business got done, a lot of things got placed and a lot of contacts were made," said Robin Forte, executive vice president of AAPL. "People were raving about success either buying deals, finding deals, selling deals."

"I attended a lunch later where some oil people commented they have money and investors and they're looking for oil deals," Forte said. "They said NAPE is what feeds their business."

Look for a big follow-up act.

Forte said 200 booths were registered at the February event. He noted also that 200 booths already have been sold for the upcoming Summer NAPE in Houston, which debuted last year. □

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GEOPHYSICAL CORNER

Technology Can Avoid the Fizzles

(The Geophysical Corner is a regular column in the EXPLORER, edited by Bob A. Hardage, senior research scientist at the Bureau of Economic Geology, the University of Texas at Austin. This month's column is titled "Distinguishing Fizz-Gas and Commercial Gas Reservoirs With Multicomponent Seismic Technology.")

By **BOB A. HARDAGE**
MICHAEL DeANGELO
DIANA SAVA

and **RANDY REMINGTON**

Fizz-gas and commercial-gas reservoirs look identical in stacked P-P seismic data and in migrated P-P images – and the failure of traditional post-stack P-P data to distinguish between these two gas saturations has frustrated efforts by operators to avoid drilling fizz-gas targets for decades.

A solution now appears to be available through the use of multicomponent seismic technology.

Specifically, when multicomponent seismic data are used to illuminate gas reservoirs, the converted-shear (P-SV) image constructed from these data can distinguish between fizz-gas and commercial-gas reservoirs.

* * *

Key petrophysical properties that need to be considered when applying multicomponent seismic technology to gas exploration are summarized in figure 1. This figure shows a reservoir interval (labeled 1) overlying a water accumulation (labeled 2).

Variations in bulk density ρ , P-wave velocity V_p , and S-wave velocity V_s are tabulated for three reservoir conditions: water, fizz gas and commercial gas.

The comments in the table describe the changes in these rock properties that occur within the target layer as the seismic imaging moves along horizon AA' and crosses the fluid contact boundary that separates region 1 (reservoir) from region 2 (non-reservoir).

If equations for P-P and P-SV reflectivities are reduced to their simplest forms, P-P reflectivity is found to be a function of $\Delta\rho$, ΔV_p and ΔV_s , the parameters tabulated in figure 1. In contrast, P-SV reflectivity is a function of only $\Delta\rho$ and ΔV_s , and ΔV_p is not involved.

This distinction between the petrophysical parameters that influence P-P and P-SV reflectivities is important.

Seismic reflectivity along interface AA' shown in figure 1 is critical to interpreting pore fluid conditions within the reservoir unit. For both commercial-gas and fizz-gas conditions, the lateral change in P-wave reflectivity along horizon AA' will be large where the seismic image transitions from reservoir to non-reservoir conditions because the lateral change in P-wave velocity (ΔV_p) is large across the fluid contact boundary for both high and low gas saturations.

As a result, both commercial-gas and fizz-gas targets look identically *bright* in stacked and migrated P-P seismic images.

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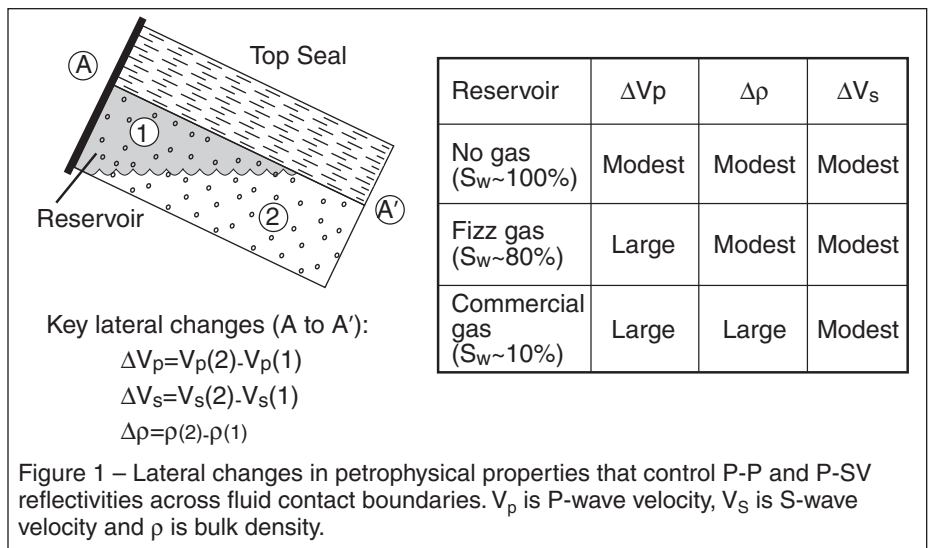


Figure 1 – Lateral changes in petrophysical properties that control P-P and P-SV reflectivities across fluid contact boundaries. V_p is P-wave velocity, V_s is S-wave velocity and ρ is bulk density.

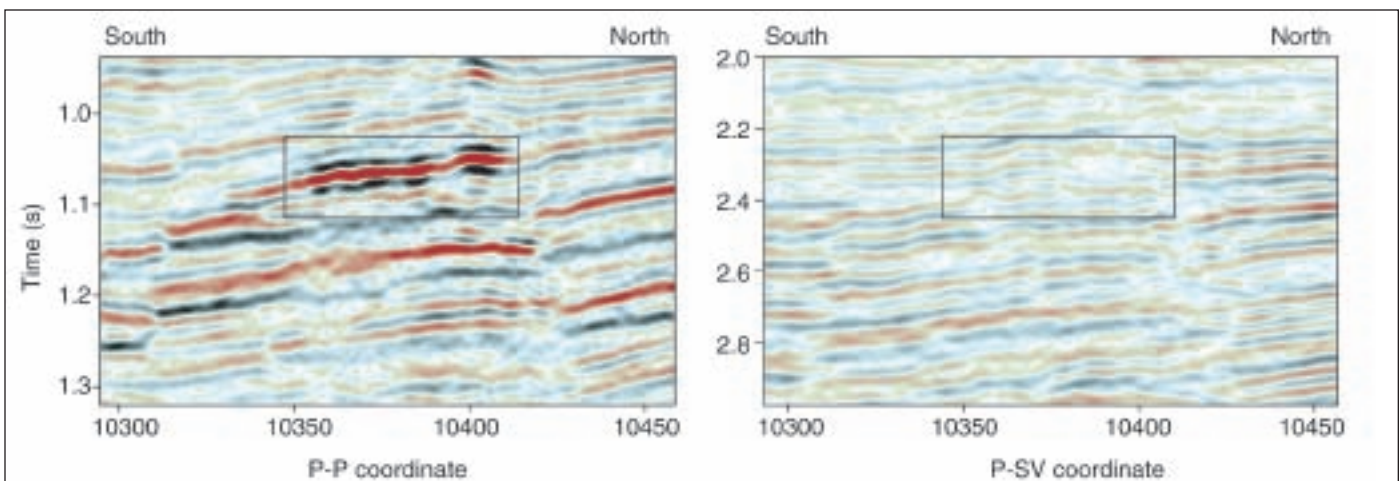


Figure 2 – P-P and P-SV images of a fizz-gas reservoir. The reservoir is positioned inside the rectangular outline. Fizz gas produces a prominent P-P amplitude anomaly (left) but no P-SV amplitude anomaly (right).

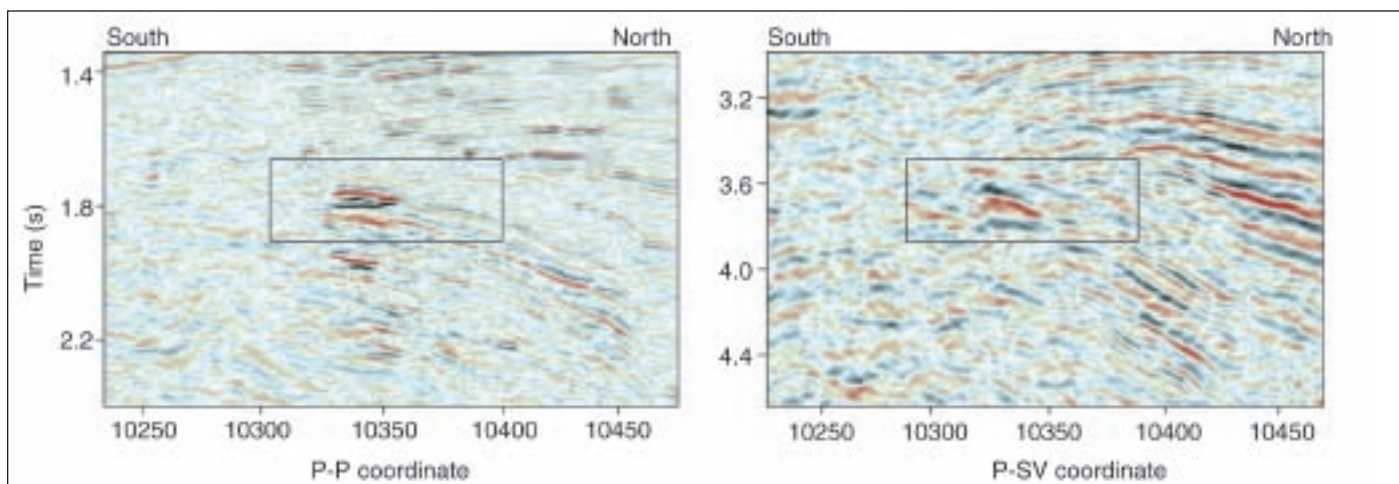


Figure 3 – P-P and P-SV images of a commercial-gas reservoir. The rectangular outline is centered on the reservoir. Commercial gas produces a prominent P-P amplitude anomaly (left) and a modest P-SV amplitude anomaly (right).

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* * *

Keeping in mind that P-SV reflectivity is influenced by only $\Delta\rho$ and ΔV_S , a second concept documented in figure 1 is that the lateral change in P-SV reflectivity will be rather large across the fluid contact boundary *only* if the reservoir contains a commercial saturation of gas.

Of the three reservoir options listed in figure 1, there is a significant lateral change in bulk density $\Delta\rho$ across the fluid contact boundary only for a high-gas saturation condition. For a fizz-gas reservoir, the lateral variation in P-SV reflectivity will be small or nonexistent because neither bulk density ρ nor S-wave velocity V_S varies significantly as the pore-fluid conditions change laterally from fizz water to 100 percent pore water. Commercial gas should thus appear *brighter* in P-SV images than fizz gas does.

To confirm these principles, P-P and P-SV images across a fizz-gas reservoir are shown in a side-by-side display in figure 2. The reservoir is a bright spot in the P-P image, but there is no anomaly in the P-SV image.

P-P and P-SV images of a commercial-gas reservoir are shown in figure 3. Again, the reservoir is a bright spot in the P-P image, illustrating it is not possible to use only the stacked and migrated P-P data in figures 2 and 3 to distinguish fizz gas from commercial gas. However, the commercial-gas reservoir in figure 3 creates a modest amplitude anomaly in the P-SV image. This P-SV reflectivity behavior is predicted by the large lateral variation in bulk density $\Delta\rho$ listed for a commercial-gas target in figure 1.

The difference between this P-SV reflectivity across a commercial-gas reservoir and the P-SV reflectivity across a fizz-gas reservoir shown in figure 2 allows fizz-gas reservoirs to be distinguished from commercial-gas reservoirs with rather good success.

* * *

A major challenge to overcome when using multicomponent seismic data is that an interpreter has to decide how to accurately depth register the P-P and P-SV images that are compared.

Note in the examples in figures 2 and 3, the target in P-SV image space is positioned at time coordinates that are approximately (but not exactly!) a factor of two greater than the time coordinates of the target position in P-P image space. The time-warping factor that should be used to adjust P-P and P-SV images to a depth-equivalent interpretation space varies laterally and vertically throughout seismic image space and will rarely be the same function at any two reservoir targets.

Some of the techniques used to define these dynamic and spatially varying time-warping factors were discussed in last month's "Geophysical Corner."

* * *

Acknowledgements: Devon and Seitel Data provided the 4C OBC data used in this research. The U.S. Department of Energy provided the research funding.

(Editor's note: The authors are all with the Bureau of Economic Geology in Austin, Texas.) □

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WashingtonWATCH

Budget, Legislative Issues Loom

By DON JUCKETT

By the time this article is published many of the front page Washington issues will have run their course or will be relegated to the inner pages of most newspapers.

I will therefore, focus this column to two issues that have been and will probably continue to be on the screen in Washington for the remainder of this year and on into the future. Those items are:

- ✓ The 2007 federal budget.
- ✓ Legislative initiatives that foster the maintenance and growth of the scientific community.

* * *

First, the annual budget cycle for the federal agencies.

While the bulk of the budget planning and program definition for the Department of the Interior and the Department of Energy have been under way for some time, outsiders – including much of AAPG's membership – are not privy to the guidance provided within the executive branch. In fact, other than the groans, moans and smiles (rare) from the individuals inside the agencies, no comprehensive perspectives are available to the public at large until the

president makes his State of the Union address.

This year there have not been any smiles! That part of the federal budget called discretionary funds, which underwrites upstream programs at DOE and DOI, also is the source of funding for items like hurricane relief in the Gulf Coast. Each of the appropriating committees in the Congress is allocated funds to place on the various programs for which they have oversight responsibility. Obviously, it is difficult to argue against hurricane relief and other efforts to restore infrastructure in the devastated Gulf Coast area. However,

within that slice of the pie allocated to committees with geoscience R, D&D program responsibility, there is likely to be fewer dollars to spread among existing and new programs.

The time-sensitive issue for AAPG and its members is to review the pertinent budget sections and decide where and how they can express support for the important geoscience initiatives. In past years, individual members and the Association, usually represented by the president, have provided testimony in support of funding for oil and natural gas programs as well as other geoscience initiatives across the federal agencies.

This year the urgency may be greater than any year in recent memory.

* * *

Second, and perhaps more important in the long term, is science education legislation moving forward separately in both the Senate and the House of Representatives.

On the Senate side is an initiative led by several members of the Energy and Natural Resources Committee. The legislative package is titled "Protecting America's Competitive Edge Through Energy Act of 2006" (PACE). The PACE Act, broadly addresses science and technology issues raised in a recent report by the National Academy of Science titled "Rising Above the Gathering Storm."

The proposed language can be found at http://energy.senate.gov/public/index.cfm?FuseAction=IssueItems.View&IssueItem_ID=31. If enacted, this initiative would be managed through the Department of Energy and the national laboratories.

On the House side, the Energy and Mineral Schools Reinvestment Act (EMSRA), with language that was initially included in the Budget Reconciliation Act, and which may subsequently be presented as a stand alone bill by the House Resources Committee.

The Reconciliation bill language can be found at <http://thomas.loc.gov/cgi-bin/query/F?c109:1:./temp/~c109oX4msB:e811377>.

In contrast, EMSRA focuses on the disciplines involved in exploration and production for energy and mineral resources. The legislation makes it national policy to preserve and foster the geoscience institutions that produce the human capital necessary for economic, energy and minerals security.

Support from this legislative proposal would be derived from OCS and federal lands royalties that currently flow to the general fund in Treasury. The proposed language includes both authorization and an identified funding stream to ensure program continuity and designates management of the program to the Department of the Interior.

* * *

GEO-DC is keenly aware that these issues are high interest items among Association members. I encourage members to keep current on the progress of these budget and policy initiatives.

As the budget and legislative process matures, this column will devote space to updating the membership. Membership inquiries and expressions of interest are encouraged.

I can be contacted at djuckett@aapg.org, (703) 575-8293. □

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New Orleans

from page 22

fellow man, giving them blankets, food and water, and maybe take them to their home; I don't know." They were on their own.

Most of those being rescued would offer him money, water or food in thanks for the trip.

"I wouldn't take their money," he said. "But I would take their water for the passengers – and their gasoline for the boat."

Although weary, DuVernay and his volunteers continued into the darkness.

On Day Two, civilians began to be joined in the rescue effort by the officials. About a half-mile away from where DuVernay had been dropping off his passengers, he found that FEMA had set up a rescue triage area, near the I-610 bridge.

"Those guys had food, water, first aid and a line of buses to take people away," he said. "I don't care what anyone has heard, those guys were kicking butt. They were awesome."

Airboats began to show up and ferry people, many of whom were elderly and infirm.

After the second day, exhausted and with the agencies taking over rescue efforts, DuVernay called a stand-down to

his labors.

"I ended up with a full 18-gallon tank and 10 gallons to spare," he said. "I also had more water than I started out with, too."

The Life Line

Over the two days, he ferried over 100 stranded, fellow New Orleansians to safety, three, four or five, as many as nine at a time.

There was one rescue DuVernay will remember forever: Early into the first day, he cautiously maneuvered his boat to a second-story window for a rescue loading. A young mother with smiles of gratitude handed a basket over to DuVernay.

"When that basket with a six-week-old baby lying in it came out that window, I thought 'this is why I'm here.'"

As the water receded, DuVernay found his house had suffered terribly as it marinated in 10 feet of the toxic floodwaters. It remained flooded for 10 days, and took another hit from Hurricane Rita less than a month later.

"Everything is soaked, broken, melted or corroded," except for his boat, axe and chainsaw, DuVernay said from his office in Houston, where his Shell office has relocated.

He said after the insurance questions are answered, he will bulldoze his house – and rebuild.

"It's what we do." □

FOUNDATION UPDATE

A new Digital Products University Subscription fund has been established in memory of a past AAPG president.

Janet L. Foster has honored her husband, the late Norman H. Foster, by endowing a Digital Products University Subscription to benefit his alma mater, the University of Iowa.

Foster was AAPG president in 1988-89. A memorial grant in his name was previously established for the Grants-in-Aid program.

For further information regarding the Foster funds or the DPF program, contact Rebecca Griffin, Foundation administrator-coordinator, at rgriffin@aapg.org, or 1-918-560-2644.

* * *

In other Foundation news, a new member has been added to the Foundation Trustee Associates. He is:

□ **Bruce Falkenstein**, Transmeridian Exploration, Houston.

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REGIONS AND SECTIONS

(Editor's note: *Regions and Sections* is a regular column in the *EXPLORER* offering news for and about AAPG's six international Regions and six domestic Sections.

News items, press releases and other information should be submitted to the *EXPLORER/Regions and Sections*, P.O. Box 979, Tulsa, Okla. 74101.

Contacts: For *Regions*, Dana Patterson Free, at 1-918-560-2616, or e-mail to dfree@aapg.org; for *Sections*, Donna Riggs, at 1-918-560-2612, or e-mail to driggs@aapg.org.

This month's column was provided by Randy Pharis, president of AAPG's Southwest Section.)

AAPG's Southwest Section exists to advance the science and profession of geology as it relates to the exploration for and development of petroleum, natural gas and other energy minerals in the southwestern region of the United States of America.

The region is home to the Fort Worth Basin, site of one of the hottest and geographically largest shale gas plays in the United States. The U.S. Geological Survey has estimated that there are 26.2 tcf of natural gas contained in the Mississippian-age Barnett shale.

The presence of gas in the Barnett shale has been known for many years, but recent high commodity prices and advances in completion technology have combined to make this a rewarding play. There are 98 rigs currently drilling the Barnett, and by the time the play is finished it may include 10 to 13 counties – most of which will have been shot with 3-D seismic.

Operators hope to duplicate the success of the Barnett shale in the Delaware Basin. Few completions have been attempted, but leasing for the Barnett and Woodford shale has been fast and furious.

The Permian Basin also is seeing an increase in activity due to the increase in product prices. Old established fields are seeing new drilling using technology for enhanced production. Horizontal drilling on the fringes of established fields has allowed operators to extend the productive limits.

Lower volume formations like the Clearfork, San Andres and Sprayberry are seeing renewed interest.

* * *

The Southwest Section, AAPG's third largest Section, has nine societies within its boundaries. They are:

- ✓ Abilene.
- ✓ El Paso.
- ✓ Graham.
- ✓ North Texas (Wichita Falls/Vernon).
- ✓ San Angelo.
- ✓ West Texas (Midland).
- ✓ Fort Worth.
- ✓ Dallas.
- ✓ Roswell, N.M.

It contains major universities within its borders, including Baylor, Texas Christian, the University of Texas at Arlington, the University of Texas at Dallas, the University of Texas at El

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New Ideas for New Frontiers

continued from previous page

Paso, Southern Methodist and Texas Tech, plus several smaller institutions.

The Section has 2,301 members, with 114 of those being students.

Twice a year (spring and fall) the Section offers a free short course to members – courses that are relevant to the region and well attended. Free short courses also are offered for registered participants at the annual Section convention.

The West Texas Geological Society holds an annual symposium in October. Last year's symposium featured 30 speakers and 10 posters and had attendance of almost 500 professionals.

The Section rotates its convention among the societies, allowing each a chance to host. Convention proceeds are split 50/50 between the hosting society and the Section.

The Section has implemented a plan whereby every five years the annual convention is located in a city that is not the home of one of the societies, and the Section hosts the convention. A large portion of the proceeds from this convention are divided among all of the societies.

The Section also rotates its presidency among the societies. Candidates for president-elect are chosen from the society hosting the convention. If the Section is the host, the candidates are chosen from any of the societies. This allows maximum participation from the smallest of societies to the largest.

* * *

This year's annual Section convention will be held May 22-24 in Midland, Texas. Events are currently being finalized by convention chairman Bruce Swartz.

The meeting will commence on Monday, May 22, with a free short course. A golf tournament also will be held that day, with an icebreaker Monday night.

The technical program will begin Tuesday morning, with presentations by the AAPG leadership. Those presentations will include:

□ The John Emory Adams Distinguished Service Award, to **Mike Party**.

□ The Monroe G. Cheney Science Award, to **Bob Hardage**.

□ The A.L. Cox Poster Award, to **Mark Vining**.

□ The A.I. Levorsen Memorial Award, to **Daniel Jarvie**.


□ The Distinguished Educator Award, to **Harold Beaver**.

Technical sessions will be conducted all day Tuesday and Wednesday; an All-Convention Luncheon will be held on Tuesday, May 23, and a DPA luncheon is set for Wednesday, May 24. A social event is being planned for Tuesday evening at the Petroleum Museum in Midland.

Incidentally, the museum recently added a new wing dedicated to Jim Hall and his racing team, and the Section is planning a 1960s style car rally in the museum. You will be able to view a number of vintage cars as well as tour the museum while sporting your favorite Hawaiian shirt.

For more information about the Southwest Section log on to our Web site at <http://www.southwestsection.org>.

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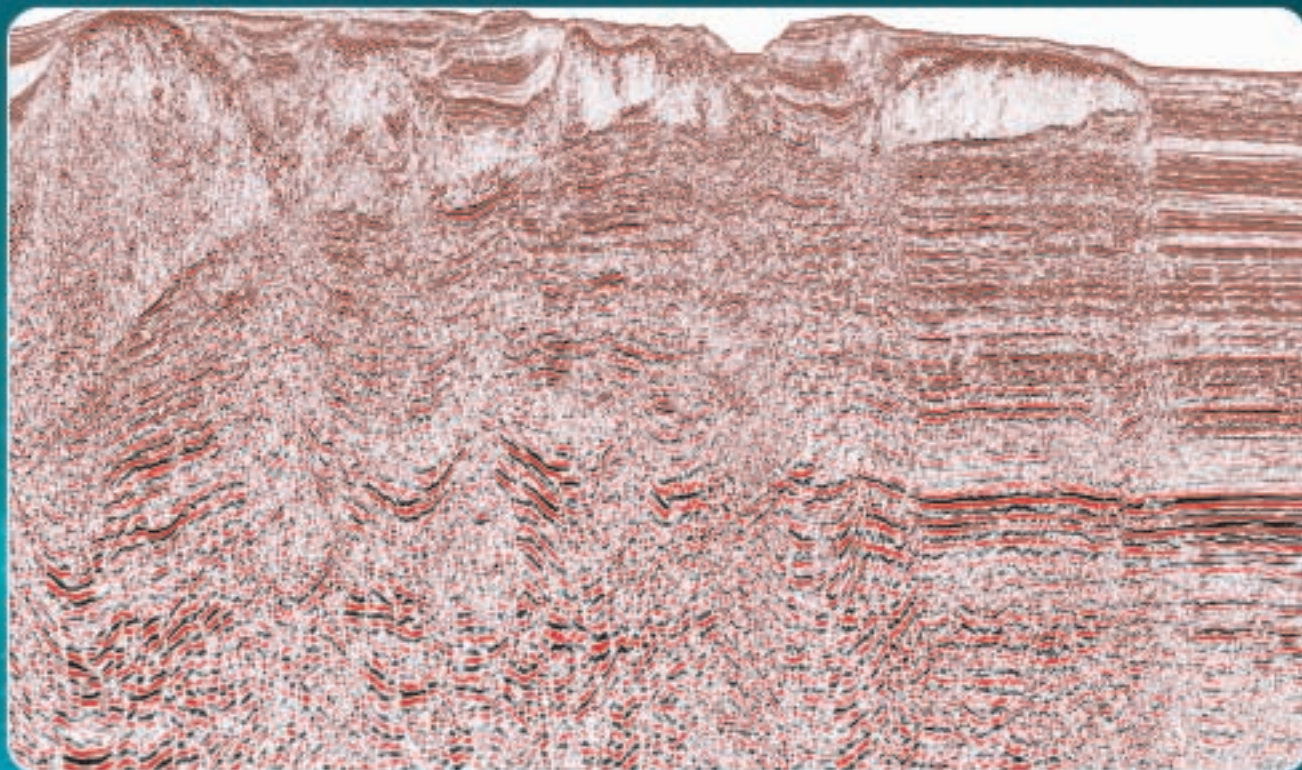
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PROFESSIONAL NEWS BRIEFS

Walter A. Anderson was awarded an honorary doctor of science degree from the University of Maine, Orono, for the advancement of geology and public service. Anderson is state geologist emeritus, Yarmouth, Maine.

Chris A. Bean, to exploration manager, Hartman Oil, Wichita, Kan. Previously consulting geologist, Beans Oil and Gas Services, Tulsa.

Brian D. Butler, to exploration section leader-Australia/Asia, BHP Billiton Petroleum, Perth, Australia. Previously section leader-Green Canyon/Foldbelt, BHP Billiton Petroleum, Houston.

Angel Callejon, to senior research specialist, ExxonMobil Upstream Research, Houston. Previously senior geoscientist,

Platte River Associates, Houston.

Mark S. Chalmers to exploration manager, BC Plains, Canadian Natural Resources, Calgary, Canada. Previously growth supervisor, ConocoPhillips Canada, Calgary.

Marlan Downey has joined the board of directors for Object Reservoir in Houston. Downey, a past AAPG president, former chief scientist for the Sarkeys Energy Center and president of Pecten (Shell) International, is retired and resides in Dallas.

Frank Gagliardi, to senior geologist, Chesapeake Energy, Oklahoma City. Previously senior geologist, Dominion Exploration and Production, Oklahoma City.

Ian R. Gordon, to geophysicist, Anadarko Petroleum, Hassi Massaoud, Algeria. Previously geophysicist, ConocoPhillips, Houston.

Thierry Michel Kabbabe, to geologist, Pecten Cameroon (Shell), Douala, Cameroon. Previously reservoir geologist, ENI Dacion, Caracas, Venezuela.

John M. Kachelmeyer, to senior geologic adviser, Devon, Houston. Previously technical manager, Unocal, Sugar Land, Texas.

Ken Keag, to vice president-Africa business unit, Noble Energy, Houston. Previously general manager, Noble Energy EG, Malabo, Equatorial Guinea.

Melanie McQuinn, to senior data specialist, IHS Energy, Houston. Previously senior field researcher, Latin America, IHS Energy, Houston.

Clint Moore, to business development manager, Murphy Exploration & Production (USA)-offshore Gulf of Mexico, Houston. Previously independent geoscientist, Houston. He also has been appointed by NOAA's National Marine Sanctuary Program to the eight-member advisory board of its Flower Garden Banks National Marine Sanctuary, Gulf of Mexico.

Cuneyt Ozdil, to staff geologist, Toreador, Ankara, Turkey. Previously exploration geologist, Aladdin Middle East, Ankara, Turkey.

Bradley Ritts has been named the Robert R. Schrock Professor of Sedimentary Geology, Indiana University, Bloomington, Ind. Previously assistant professor, Utah State University, Logan, Utah.

Rick Sarg, to geosciences senior adviser and instructor, William M. Cobb and Associates, Dallas. Previously stratigraphy coordinator, ExxonMobil Exploration, Houston.

Victor Schmidt, to drilling engineering editor, World Oil magazine, Houston. Previously exploration editor, Offshore magazine, Houston.

Saverio A. Spagnuolo, to senior staff development geologist, Santos Ltd., Adelaide, Australia. Previously advanced senior geologist, Marathon Oil, Houston.

David R. Spain, to development planning integration leader, Wamsutter, BP North America Gas, Houston. Previously MC-29 program leader, deepwater Gulf of Mexico, BP, Houston.

Einar Sverdrup, to chief geologist, Ener Petroleum, Lysaker, Norway. Previously technical product manager, Roxar, Oslo, Norway.

Mark Webster, to exploration manager, TAG Oil, Wellington, New Zealand.

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Delegates' Agenda Eyes Officers, VP Proposal

The House of Delegates will vote on new officers during its meeting April 9 at the Annual Convention in Houston.

The candidate chosen as chairman-elect will serve as chairman of the House in 2007-08, and also represent the HoD on the AAPG Executive Committee.

The candidates are:

Chairman-Elect

- ☐ **George Bole**, consulting geologist, Houston.
- ☐ **Martin (Marty) Hewitt**, EnCana Oil & Gas Partnership, Calgary, Canada.

Secretary/Editor

- ☐ **Paul Britt**, Texplore Inc., Sugar Land, Texas.



Bole



Hewitt

- ☐ **Jeannie Fisher Mallick**, Excalibur Consulting, Houston.

The HoD agenda also calls for consideration of a proposal to add an

international vice president position to the AAPG Executive Committee.

The Executive Committee voted 6-1 to send the proposal to the House. AAPG members eligible to vote were notified in early January, and the topic was discussed during the recent Leadership Conference in Galveston, Texas.

House of Delegates Chairman Donald D. Clarke said the proposal is an effort by the Executive Committee to respond to calls for representation of the international membership on the EC. Clarke noted that nearly 25 percent of AAPG membership resides outside the United States.

If approved, the current vice presidential office then would be

specified as a U.S. Sections position.

The bylaws proposal also would change the term of office for both VP offices to two years, which would be staggered.

The proposal calls for the vice president-Regions to reside outside the United States.

The addition of one position to the Executive Committee will make a total of seven elected officers along with the chairman of the House of Delegates, for a total of eight voting members of the EC.

The proposed Constitution and Bylaws changes will require a two-thirds vote of those present at the House of Delegates meeting for approval.

For further information, see <http://www.aapg.org/bylawschanges.cfm>. ☐

INMEMORY

Richard R. Bloomer, an AAPG Honorary Member and former AAPG secretary, died Dec. 26, 2005, in Austin, Texas, following a long illness. He was 87.

Bloomer was an independent geologist who graduated from the University of Virginia and later received his Ph.D. in geology from the University of Texas at Austin. He served as AAPG's secretary in 1985-87, and was active in association committees and other leadership capacities throughout his 56-year membership.

He was a Trustee Associate of the AAPG Foundation, and was a generous supporter of several Foundation funds.

He also was a president of AAPG's Southwest Section, where he also received honorary membership.

* * *

- Richard R. Bloomer**, 87
Lago Vista, Texas, Dec. 26, 2005
- Robert A. Gilmore Jr.** (AC '80)
Houston, September 2005
- Laurence Earl Gnagy**, 80
Midland, Texas, Dec. 20, 2005
- George Wesley Hicks** (EM '58)
Muldoon, Texas, 2005
- Marie J. Hill**, 86
Whittier, Calif., August 2005
- Ernest Henderson Horton**, 82
San Antonio, June 4, 2005
- Bill Judson McGrew**, 77
Columbia, Tenn., Dec. 23, 2005
- Mohd Redzuan Said** (AC '87)
Houston, 2005

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

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Previously chief geologist, ministry of economic development, Wellington, New Zealand.

Michael L. Wiggins, to vice president, William M. Cobb and Associates, Dallas. Previously professor of petroleum and geological engineering, University of Oklahoma, Norman, Okla.

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



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WWW.UPDATE

Online Voting Easy as 1-2-3

By JANET BRISTER
AAPG Web Editor

It's time to vote on your 2006-07 officers: president-elect, vice president and treasurer.

By the time you read this you may already have received written notification of your e-signature that allows you to cast your secure, secret vote online. (It's as effortless as voting by paper ballot – and cheaper).

I just finished testing the system that's in

place and it was a very quick and easy experience.

* * *

Last June at the Calgary convention the House of Delegates voted to change the AAPG Bylaws, Article II, Section 10(b), which allows for “preferential voting” when three or more candidates are on the ballot.

Basically, the goal is to elect a person with 50 percent or more of the vote, which can be difficult when there are more than two candidates.

Under preferential voting, if no candidate receives a majority of the first choice votes cast, then the candidate that received the least number of first choice votes shall be dropped from consideration, and the second choices of those voters whose first choice was the dropped candidate shall be deemed those voters' first choice.

If there is still no majority candidate, the process is repeated until a candidate receives a majority of the first choice votes cast.

This year, there is one race on the ballot with three candidates where this new rule goes into effect. Be sure to mark your preference. It's as easy as 1-2-3.

Ballots will be counted on May 15.

Other Online News

Then there's that other annual privilege for all members – paying your dues.

So, the reminder here is: Your AAPG membership number is your login. Your password was assigned to you, and if you have never used any member-only features, click on the link “Reset my password” at the base of the login page.

This prompts you to enter your e-mail address, and upon submittal you will receive by e-mail a link that will give you power to assign a password of your choosing.

If this does not function properly, then that means our e-mail address data doesn't match, and you need to contact AAPG headquarters and speak to a Member Services representative for assistance.

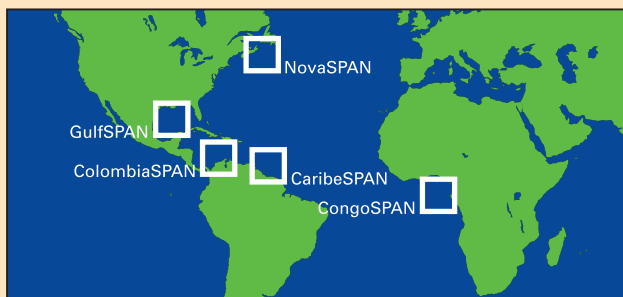
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MEMBERSHIP AND CERTIFICATION

The following candidates have submitted applications for membership in the Association and, below, certification by the Division of Professional Affairs. This does not constitute election, 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.)

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

For Active Membership

Colorado

Rasmussen, Dalton L., Whiting Petroleum, Denver (A. Villamizar, J.R. Forster, D.L. Rasmussen)

Montana

Suydam, James D., Paradox Consulting, Billings (W.B. Freisatz, K.P. Carlson, R.B. Suydam)

Texas

Drumsta, Nicholas M., Citation Oil & Gas, Houston (S.W. James, S.L. Hart, R.W. Unger); Edwards, James K., Meridian Resources, Houston (A.V. Brewster, R.A. Watts, B.L. Wicker); Feragen, Edward S., Houston (R.E. Bierley, D.E. Millman, D.C. Kasper); Foster, Carrie, ConocoPhillips, Houston (F.C. Snyder, C.C. Parry, R. Wayland); Gale, Julia Fiona Wells, University of Texas at Austin, Austin (S.E. Laubach, E.C. Potter, R.H. Trevino); Hebert, John P., Devon Energy, Houston (S.M. Campbell, C.T. Meyer, R.J. Corken); Lytton, Rome Gaffney, Chevron, Houston (reinstatement); Mauldin, Darrell Lee, First Financial Trust & Asset Management, Abilene (A.D. Frizzell, R.A. Stillwell, W.R. Spiva); Milkov, Alexei V., BP America, EPTG, Houston (G.P. Wahlman, C.K. Steffensen, I.L. Dzou); Nicholson, David Paul, ENSR International, Plano (J.M. Rutkauskas, B.E. Robinson, K.A. Webber); Prueser, Robert Edward, ExxonMobil Production, Houston (E.G. Vogl, K. Srinivasan, G.A. Aydinian); Sawyer, Dale Stewart, Rice University, Houston (reinstatement); Streitl, Geoffrey William, Pogo Producing, Houston (B.E. Archinal, G.J. Dillman, J. German-Heins); Wallace, Kevin J., Anadarko Petroleum, The Woodlands (R.C. Griffith, M.E. Podell, T.W. Griffith); Yun, Janet, Chevron, Houston (M.W. Quearry, J.J. Toups, G.N. Okeke)

Angola

Helm, John Anthony, BP Angola, Luanda (A.W. Schultz, C.D. Clerk, W.M. House)

Australia

Heidorn, Rodrigo, Oilsearch Ltd., Sydney (D.L.E. Moreton, G.M. Bradley, S.R. Greaves); Skinner, Janet Elizabeth, Beach Petroleum, Glenside (B.A. Camac, H.M. Gordon, L. Elliot)

Canada

Olutusin, Bamidele Solomon, Labradorite Geological Consulting, Regina (A.O. Ekun, A.A. Idowu, B. Akinbiyi)

France

Coury, Yves Jean-Victor, Beicip-Franlab, Rueil Malmaison (L.S. Montadert, J. Burrus, P.S. Chenet); de Galard, Jean-Hector, Beicip-Franlab, Rueil Malmaison (J. Burrus, L.S. Montadert, V. Alcobia)

Gabon

Perumalla, Satya Narayana V.V., RPS Cambrian Consultants, Port Gentil (G.R. Amruthapuri, A.O.)

Certification

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

Petroleum Geologist

Oklahoma

Elliott, Leo Boyd Jr., Sundown Energy, Oklahoma City (G. Wentz, W.S. Boyd, G.A. Wilson)

South Carolina

Nelson, Jeffrey Carter, Decision Strategies Inc., Hilton Head (reinstatement)

Texas

Brint, John Forsyth, Shell E&P, Houston (Geological Society of London)

Edzang, Y.S. Sundar)

India

Bali, Alok, Oil and Natural Gas Corp., Navi Mumbai (R.S. Dirghangi, P. Seal, M.K. Chakrabarti); Negi, Sanjeev Singh, Oil and Natural Gas Corp., Mumbai (B.B. Tokhi, M.S. Srinivas, A.M. Chitrao)

Netherlands

Milne, Alastair John, Shell, Rijswijk (R.A. Jones, B.T. Mitchell, E.H. Mason)

Pakistan

Raza, Syed Muhammad, Pakistan Petroleum, Karachi (M.R. Khan, N.K. Siddiqui, M.Z. Aziz); Siddiqui, Raza Ahmed, Pakistan Petroleum, Karachi (M.R. Khan, N.K. Siddiqui, M.Z. Aziz)

Scotland

Lewis, Helen, Institute of Petroleum Engineering, Edinburgh (P.W. Corbett, C. Macbeth, G.D. Couples) □

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Alliances

The AAPG GEO-DC office is to provide geological data to public policy makers, since legislation potentially impacts our membership domestically and often internationally. The interaction with legislators and regulatory and scientific entities is our focus.

However, GEO-DC can provide information to unlikely groups that share some common interests with geologists. Examples are the Teamsters Union and the National Farm Bureau; both represent memberships that need abundant and affordable energy to compete in a global economy.

The price of any product is heavily

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.

dependant upon the cost to produce that good. The cost to produce is dependant upon technology, the cost of labor and base materials and energy expended to create the end product.

Energy prices are largely controlled by the capacity to deliver that product to market.

The United States had abundant energy supplies and infrastructure, and therefore enjoyed relatively cheap energy prices. Coupled with technological superiority, we enjoyed a competitive advantage even though

our labor wages and benefits were substantially higher than most international locales.

With the rapid modernization of Asia, the technological advantage has decreased. Domestic jobs have increasingly been lost to locales with cheaper labor and benefit costs, and lesser regulation.

Domestic energy deliverability from oil, gas, coal, nuclear and hydroelectric sources has been artificially decreased by excessive regulation, environmental extremist

litigation and restrictions on access and development. This has decreased deliverability and increased both energy price and price volatility.

Geologists need access to find and then develop oil, gas, uranium and coal resources into reserves and ultimately delivered product. Access and activity benefits geologists, truckers and farmers, because more drilling brings more geologic employment and ultimately increased energy supplies, resulting in price stability and lower prices.

The oil industry is capital – but not manpower (voter) – intensive and has historically been an easy target for politicians. The groups mentioned, unlike geologists, represent large numbers of voters and are often able to affect public policy and political behavior. Alliances with these and other organizations could help create a political climate that encourages the responsible development of our resources domestically, and possibly provide an international model.

Richard G. Green
Dallas

(Editor's note: Green is president-elect of the AAPG Division of Professional Affairs.)

Workstations and Geology

Regarding your story on Cindy Yeilding and the danger of workstations replacing geology (February EXPLORER):

With the present phase of search being directed to "difficult oil" it has become all the more important to revert to basic geologic thinking with the proper support of exploration technology.

Shyamal Kumar Majumdar
Salt Lake City

Going Global

The debate has been raging in AAPG about expanding globally for as long as I remember. There was even talk in the 1980s of changing the name of the Association to reflect a more international perspective. Since that time the world has become a much smaller place. As America's energy reserves continue to deplete and a larger share of our needs are imported from abroad, I can only say that Pete Rose's column (January EXPLORER) is right on target in my view. Foolish provincialism will only lead to the decline of AAPG.

Not only does AAPG have much to offer the world, but the world has much to offer us. I think that we have no choice but to expand our horizons internationally. As Pete would say, "Onward!"

Chris Steincamp
Wichita, Kan.

The January President's Column caught my attention – I hope that was a common response.

It is commendable that the AAPG wants to carve out a larger international role for itself. Changes in the oil and gas industry and our profession require a repositioning for institutional survival. An international focus also offers an opportunity to enhance the performance of the industry, which is essential if we are to meet the growing demand for energy.

I worked overseas for 20 years – sometimes for western companies, sometimes for national oil companies

continued on next page

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46870

continued from previous page

(as an employee and as a consultant). That drove home the need for an international focus.

My observations:

✓ Education.

Continuing education – in the broad sense – is crucial. AAPG, through its conferences, publications and short courses, does an admirable job. Is it possible to advance beyond this?

The column referred to mentoring. In my experience, that is problematic for some national oil companies. Technical standards are often highest for senior staff trained by IOCs prior to nationalization. These people form the core of the current technical management teams. Their promotion into management reduced the mentoring required to transfer skills to junior staff.

“Poaching” of qualified staff by foreign companies also can reduce the skill level at national oil companies.

Many national oil companies spend considerable money for their staff to attend outside training courses. All too often, these skills are not applied on the job, for lack of mentoring. How might the AAPG provide services that help bridge this gap?

✓ Increasing Membership.

The proposal to modify the requirements for joining the AAPG would help expand membership. Both the cost of membership and need to find two active members as sponsors deter applicants. All of the members whom I sponsored were at overseas locations. In each case, I was one of the few – and at times the only – Active AAPG member available. Finding sponsors who have first-hand knowledge of an applicant’s qualifications can be difficult.

It also is important that overseas members play an active role in the AAPG. Paying dues and sitting on the sidelines does not promote a commitment to the organization.

✓ The “Oil Peak” Question.

The kerfuffle about reported reserves from Saudi Arabia and other countries feeds doubts about the ability of oil and gas to meet our future energy needs. Proposals have been made to reduce uncertainties by building an oil field database that includes OPEC member nations. Politics, of course, may scupper that idea.

However, an AAPG of international scope and repute – and not viewed as solely American – might be able to play a major role.

R. Patrick MacDaniel
Houston

The Crash

Regarding your story on “the Crash” (January EXPLORER): This was an outstanding and useful piece of work. I intend to reference the article when discussing energy prices, policy, politics and tax issues with people who do not work in the energy industry. Thanks for creating this document and making it available.

My career spans the events discussed, but it is always difficult to remember the details of timing, cause and effect. In addition, while experiencing the many events, the statistics and the context of long-term cycles are not known. I cherish the memories of an exciting and challenging career, looking back with pride at the effort and results and with thanks for the opportunities afforded me by a free market economy – and I look to future challenges with no regrets about the career I have taken.

William B. Hanson
Vernonia, Ore.

Geophysical Contracts

Has anybody read the new “Master License Agreements” that the seismic brokers and other geophysical contractors have written and insist we all sign?

This agreement, as written, fundamentally changes the way we do business. It was written by a committee staffed fully by contractors with no exploration or operational company input, and would put the contractors squarely in your day-to-day business.

Everything you do with the seismic data is covered by this agreement and puts the contractors in your decision making process. To those of you who lease automobiles, it would be like the car dealers getting together and forging a contract that would tell you who could ride in your car and what they could or could not do in the car.

For instance, it requires a confidentiality agreement – not about

your prospect, but about the seismic data. Whether it is a processor, consultant or possible drilling partner, they would all have to sign an agreement and follow strict guidelines about the data. This confidentiality agreement would, upon request, have to be furnished to the contractor in question or else you have violated the agreement and would have to pay a fine, return the data or both.

If in the course of due diligence I need to review the seismic data over a specific prospect in which my company might invest, I can’t. That is to say, I can see the data in the other company’s office, which is a totally acceptable business practice, but I cannot:

✓ “Operate any computer workstation on which the Data or Derivatives are displayed.”

✓ “Make copies, summaries, transcriptions, reproductions or

interpretations of any type.”

✓ “Remove copies, summaries or transcriptions of the Data or Derivatives from Licensee’s premises ...”

In my understanding, this phrase means that I can’t make my own interpretation of the prospect and I can’t take anything back from a data review except my memory. I don’t want copies of the seismic data, but a quick prospect specific map and notes have been acceptable in the past.

A seismic broker has told me that making such evaluations would be robbing the data owners of a sale. They would have me buy the data to evaluate a third party prospect. To use the car analogy, if I let anyone ride in my car it would deny GM a car sale.

You might tell me, “They will never enforce those parts.” I would answer, “Why would they insist on those

See **Forum**, page 42

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Topics will include basement influence on sedimentary fill, Bakken and Torquay hydrocarbon occurrences, Paleozoic carbonate plays, developments in heavy oil, shallow gas exploration strategies, and oil sand potential in Saskatchewan, among others.

Submissions are encouraged from industry explorationists, university researchers, and government survey geoscientists.

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Leaders: Lee F. Kryndrik, Corcoran/Phillips, Houston, TX and Beverly Blakeney DeJarnet, Bureau of Economic Geology, The University of Texas, Houston, TX
Dates: June 5-11, 2006
Location: Begins and ends in Salt Lake City, Utah
Tuition: \$2,000 (increases to \$2100 after 5/31/06), includes ground transportation, guidebooks, some meals
Limit: 25
Content: 4.2 CEU

Who Should Attend

Geologists and Geophysicists of all experience levels

Folding, Thrusting and Syntectonic Sedimentation: Perspectives from Classic Localities of the Central Pyrenees

Leaders: Antonio Teixell, Universitat Autònoma de Barcelona, Spain and Antonio Berrocal, Instituto Geológico y Minero de España, Madrid, Spain
Dates: June 12-16, 2006
Location: Begins and ends in Barcelona, Spain
Tuition: \$1,750 USD (increases to \$1850 after 5/31/06), includes guidebook and course materials, rental and roundtrip transportation from Barcelona, lodging, and all meals
Limit: 22
Content: 3.5 CEU

Who Should Attend

Exploration and development geologists and geophysicists interested in thrust-fold structures and tectonic-sedimentation interactions in compressional belts.

Sequence Stratigraphy and Reservoir Distribution in a Modern Carbonate Platform, Bahamas

Leaders: Gregor P. Eberli, Comparative Sedimentology Laboratory, University of Miami, Miami, FL; G. Michael Gormer, Dept. of Geosciences, Western Michigan University, Kalamazoo, MI; Paul M. Slichter, Harris, Clewson Energy Technology Co., San Ramon, CA
Dates: June 12-17, 2006
Location: Begins and ends in Miami, Florida. Four days are spent on a chartered boat in the Bahamas
Tuition: \$3,000 (increases to \$3700 after 5/16/06), includes flights to and from the Bahamas to Miami, boat, accommodation in the Bahamas and all meals
Limit: 11
Content: 4.2 CEU

Who should attend

Petroleum geologists, geophysicists and reservoir engineers who are working in carbonates and need to understand facies heterogeneities and porosity distribution on exploration and production scales.

Short Courses!!

Quantification Of Risk — Petroleum Exploration & Production

Date: June 6-9, 2006
Location: Denver, Colorado
Tuition: \$995, AAPG members; \$1,095, non-members (increases to \$1095/\$1195 after 5/31/06), includes course notes and refreshments
Limit: 40 persons
Content: 3.0 CEU
Instructors: Gary Olson, Mark McLane, Rose and Associates, Houston and Midland, TX, respectively

Who Should Attend

Course is designed for geologists, geophysicists, engineers, and their managers. This course is also helpful for financial advisors, corporate planners, accountants and state and federal government individuals.

Practical Salt Tectonics

Date: June 25-28, 2006
Location: Dallas, Texas
Tuition: \$795, AAPG members; \$895, non-members (goes up to \$895/\$995 after 5/31/06), includes course notes and refreshments
Content: 2.1 CEU
Instructor: Helen G. Roman, Consultant, Boulder, CO

Who Should Attend

Exploration and production geologists, geophysicists, and managers working in salt basins worldwide who need either an introduction to salt tectonics or an update in this rapidly evolving field.

NEW GeoTour!!!

Geologic Tour through the Napa-Sonoma "Wine Country" Region

Leaders: Brent Mrozicki, Innovateer International, Paradise, CA; Laurie McClellan, MHA Environmental Consulting, San Mateo, CA
Date: June 10-14, 2006
Location: Sonoma Valley, California (begins and ends in Oakland, CA)
Tuition: \$2,360 per individual or \$3,675 per couple (increases to \$2,400 per individual/\$3,775 per couple after 5/31/06), includes 4 night lodging, bus transportation, 2 lunches, daily refreshments, tours and tastings of 9 different wineries, a group gourmet dinner event, entrance to historic sites and guidebook
Limit: 33 persons

Who Should Attend

Geologists, spouses/partners and anyone who would like to experience the area's historical and cultural treasures while tasting various wines from a region rich in natural resources.



For further information, please contact the AAPG Education Department
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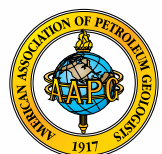


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Rice University, PO Box 1892, Houston, TX 77251-1892.

Information about the department can be found at <http://earthscience.rice.edu>.
Rice is an equal opportunity affirmative action employer.

Forum

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clauses and penalties if they didn't mean to collect?"

I could go on, but you would be better served to visit the IAGC Web site and see for yourself – both the contact and who wrote it.

As the contractor/ seismic brokerage industry wrote the agreement I know what their opinion would be, so I would appreciate my fellow explorationist's opinion on the matter.

I have heard many say to me, "just sign it, ignore the bad parts and continue on as usual." I don't feel that

is right. I believe this could ultimately set up geologists, geophysicists, consultants, exploration and operational companies for a multitude of, at least, legal paper work, and, at most, lawsuits and steep fines.

As a side thought, the IAGC Web site says that foreign countries have a limited proprietary time for seismic data, and that after such time the data becomes state property. In the United States, especially at the state level, we find it common for the states to file copies of well logs and other information for all to use.

Could it be time to revisit the idea of domestic seismic data also, after a proper time limit of say 10 or 15 years, being filed with the state for all to use in exploration?

Don Eustes
Shreveport, La.

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DEG

from page 45

Hampshire, North Carolina, Oregon, Pennsylvania, South Carolina, Texas, Utah, Virginia, Washington, Wisconsin, Wyoming and Puerto Rico.

The next National Association of State Boards of Geology exam for geologists in Texas will be offered on **Oct. 6**, and the registration deadline for the October exam is **Aug. 22**. Visit <http://www.asbog.org/>, and/or <http://www.tbpg.state.tx.us/> to get more information about the ASBOG exam. Exam information for the other ASBOG member states may be found on the ASBOG Web site.

Another DEG pre-meeting short course (offered April 6-7) is titled "Field Safety Leadership Seminar." This course will be a one-and-a-half day field course that will teach the attendees to plan and prepare a health and safety plan for a field trip.

Participants will receive the Field Safety Leadership Manual that has been successfully taught at ExxonMobil for several years.

This course is limited to 24 people and interested individuals should register by contacting Stephen R. Oliveri at stephen.r.oliveri@exxonmobil.com.

I hope you will consider attending both of these important short courses in Houston.

* * *

I trust that when you attend the annual convention you'll listen to as many of the excellent sessions that you can fit into your schedule. □

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The Center for Earthquake Research and Information (CERI) at the University of Memphis invites applications for the position of Research Professor at the Assistant or Associate level depending on

applicant experience. This is an annual contract position through CERI as a Tennessee Center of Excellence with salary supported to at least 50% after three years of up to full salary support. A 12 month salary commensurate with experience will be offered and the position is available starting September 1, 2006.

We seek a colleague with expertise in one of three broad areas. These include Engineering Geology/Geotechnical Engineering, Lithospheric Geophysics, or in Earthquake Source Science. Applicants must have a Ph.D. at the time of employment and show a demonstrated record of research productivity or strong promise in research. The successful candidate is expected to build a strong, externally funded research program, mentor M.S. and Ph.D. graduate students, be collegial, and teach at least one graduate course in his or her specialty per year. CERI is located near the New Madrid Seismic Zone with many opportunities for field work in geophysics, geology, and earthquake engineering. CERI faculty are engaged in a variety of regional, national, and international research projects in geodesy, geology, geophysics, and earthquake hazards. CERI (<http://www.ceri.memphis.edu>) has a large seismic network facility with technical staff, exploration seismic equipment, and state-of-art broadband and strong ground motion field recording capability. The U.S. Geological Survey also maintains an office at CERI. The successful candidate will also

be associated with an academic department at the University of Memphis appropriate to his or her background.

Applicants should submit a full curriculum vitae, a letter expressing their research and teaching interests, and the names and addresses (with phone numbers and email) of at least three references to: Prof. Charles A. Langston, Chair of the Search Committee, Center for Earthquake Research and Information, University of Memphis, 3876 Central Ave., Suite 1, Memphis, TN 38152-3050. To receive full consideration, applications should be submitted by March 31, 2006. The University of Memphis is an equal opportunity/affirmative action university.

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AAPG Regions & Sections Manager

The American Association of Petroleum Geologists is seeking an individual to assist in development of member programs and initiatives both domestic and international. Duties include: liaison/consultant to executive committees, attending both domestic and international conferences, election and member directory administration, advising association committees on conference planning issues.

- Degree relationship building with widely diverse groups.
- Minimum of 5 yrs. relevant experience.
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- Excellent interpersonal communication skills; capable of demonstrated ability to handle multiple, simultaneous & rapidly changing priorities.
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DIRECTOR'S CORNER

Houston: All Systems Are Go

By RICK FRITZ

Where can you have the opportunity, for about \$80 per day for the price of admission, to choose from 465 technical talks, 415 posters, view state-of-the-art technology from around the world, and enjoy networking with top geoscientists and business leaders?

It is the AAPG Annual Convention and Exhibition (ACE), scheduled for April 9-12 at the George R. Brown Convention Center in Houston.

AAPG is preparing for a *really big show* in Houston this year, and we are expecting a crowd of well over 7,000 attendees. Our theme is "Perfecting the Search – Delivering on Promises." SEPM helps produce the technical sessions and other educational opportunities, and this year's ACE is hosted by the Houston Geological Society.

This year's convention features a comprehensive technical program that showcases the best of geoscience advances and industry exploration and production activity. Session and forum themes will address:

- ✓ Successful business strategies.
- ✓ Learning from explorations and exploitations successes, failures and mistakes.
- ✓ Perfecting the search for unconventional plays and technology.
- ✓ Giant fields of the world and what they have to teach us.
- ✓ Integrating geology, geophysics and engineering to deliver success.
- ✓ Reservoir characterization and modeling.

Judges Needed – Yes, This Means You!

Due to the robust program of this year's Annual Convention technical program, we need as many judges as possible.

Judges typically review only one session and provide a great service to presenters for potential awards and feedback. They also provide the committee with a quality measurement

- ✓ Stratigraphy and petroleum systems.
- ✓ Structure and tectonics.
- ✓ Play openers and where they are leading us.
- ✓ Delivering resources and environmental quality for a sustainable future.

This program truly has something for everyone. Whether you work for a major, independent, institution or for yourself this is a great educational opportunity.

Complimenting the technical sessions is a major exhibition. Exhibitors are a key part of the convention, not only for the contribution of their state-of-the-art technology but for their support of the technical program and other convention activities. We encourage all attendees to visit the exhibition. It is where people and technology meet.

ACE also offers many short courses and field trips by AAPG, its Divisions, the SEPM and the HGS.

One of the comments I hear through

for future meetings and potential new talks and publications.

Best yet, getting on the list to be a judge is easy. You can do it as you register for convention online – or, if you already have registered, contact Sandy Hensley at AAPG headquarters, shensley@aapg.org.

the year is the desire to look at rocks. AAPG is one of the primary brokers of field trips around the world. This year's list of convention field trips goes from turbidites in Mexico to Quaternary depositional systems on the East Texas coast to moon rocks at NASA (with astronaut and AAPG member Harrison "Jack" Schmitt as a guide).

Several core workshops also are available.

Conventions of this size are only made possible by the many dedicated hours provided by volunteers with staff. The Houston Organizing Committee, under the direction of general chairman Charles Sternbach, has done a great job.

* * *

Of course, one of the best things about AAPG conventions is the integration of geoscience and business. AAPG has a history of providing a good mix of professional opportunities. The

Houston convention will be a key opportunity this year to network with old contacts and develop new ones.

The annual convention also is important from a governance aspect of AAPG; this is our annual business meeting. The Executive Committee, Advisory Committee, the House of Delegates and most of AAPG's standing and ad hoc committees meet at this time.

Of course, we always encourage all of you to join a committee and be involved. It is a great way to develop your career contacts and refine your interests.

You can view a list of AAPG committees at www.aapg.org. Please contact Janice Scott at jscott@aapg.org if you find one you want to join.

Now is the time to register! Many of the special lecturers and entertainment events are filling up.

Don't forget, the price of admission also includes a reception on Sunday night with thousands of your closest friends and peers.

Register online at www.aapg.org/houston/.

Please come, enjoy and support your profession.



Houston Program of Broad Interest

DEG Topics Cover a Lot of Territory

By STEVEN P. TISCHER
DEG President

I hope you will be able to attend the AAPG Annual Convention in Houston, scheduled for April 9-12 at the George R. Brown Convention Center, which will feature a number of DEG-sponsored sessions and activities, plus DEG-flavored topics that will be of interest to all.

The technical program's Theme 7, for example, is titled "Delivering Resources and Environmental Quality for a Sustainable Future," and it includes four separate sessions that will provide educational opportunity for every geoscientist and environmental professional that attends.

The four sessions within Theme 7 are a collaboration between DEG, DPA and EMD. They are:

- ✓ Use of Renewable Energy in Oil/Gas Production and Environmental Restoration.
 - ✓ CO₂ Sequestration – Coals/Shales/Produced and Unproduced Reservoirs as Sequestration Targets.
 - ✓ Professional Practice of Environmental, Engineering and Exploration Geology.
 - ✓ Advances and Applications in Geospatial Information Technology: Remote Sensing, GIS, GPS and GPR.
- As you can see by the outstanding titles, everyone attending will have a multitude of excellent topics from which to choose.

* * *

In addition to Theme 7, a Wednesday morning (April 12) forum titled "Winning the Oil Endgame," featuring several key industry leaders, will be immediately followed by the DEG luncheon with the same title. It should be of interest to all.

The DEG luncheon will feature author Amory B. Lovins of the Rocky Mountain Institute to present a synopsis of his publication, "Winning the Oil Endgame." His book can be purchased at your favorite bookstore, or can be downloaded at www.oilendgame.com.

* * *

One of the DEG short courses during the Houston meeting is titled "So You Want to Pass the Professional Geologists

Licensing Examination?" This course will assist a geologist, geophysicist and/or soil scientist with identifying materials to study and become familiar with to be able to pass the Professional Geoscientists' Exam.

Once you pass the exam, the Texas Board of Professional Geoscientists awards the successful candidate as a licensed "professional geoscientist." The following states or protectorate have requirements for geoscientists to be able to be licensed to practice: Alabama, Arizona, Arkansas, California, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Kansas, Kentucky, Maine, Minnesota, Mississippi, Missouri, Nebraska, New

See **DEG**, page 42



In other DEG news:

An opportunity for you to volunteer and assist the AAPG and DEG is to become a Visiting Geologist.

Being a Visiting Geologist means you get to present a topic to geoscience students at colleges and universities; for example, you can explain to a student the career opportunities you have had throughout your career and explain the necessity of networking through membership in a professional society like AAPG.

More institutions are offering environmental geoscience curriculum, so there is a definite need for environmental professionals to explain

the various opportunities available to students so they have an idea about the future employment possibilities.

I hope I have piqued your interest and you decide to become a Visiting Geologist! If so, please contact Mike Mlynek at (800) 364-2274 today.

* * *

The DEG needs committee chairs and committee members to organize and recommend new and/or revised services for DEG members.

For example, the DEG Continuing Education Committee needs a chair and members to recommend courses that will assist DEG members with professional development and ways to

obtain continuing education units (CEU) to meet requirements to continue to qualify as certified, licensed or professional geologists as specified under federal, international and/or state laws.

Each of the other DEG committees needs members to coordinate with committee chairs to recommend services to the Executive Committee for the betterment of all DEG members.

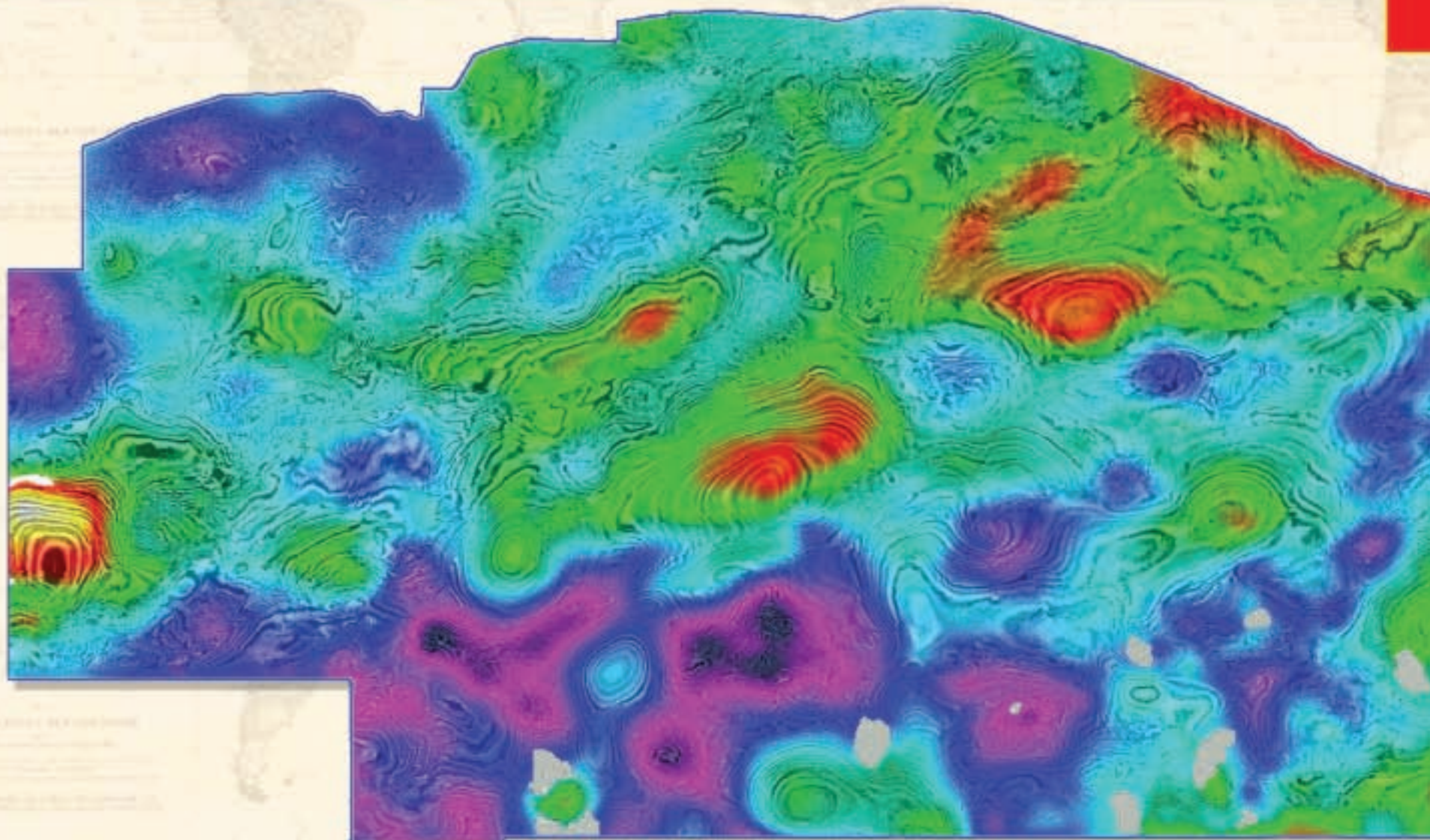
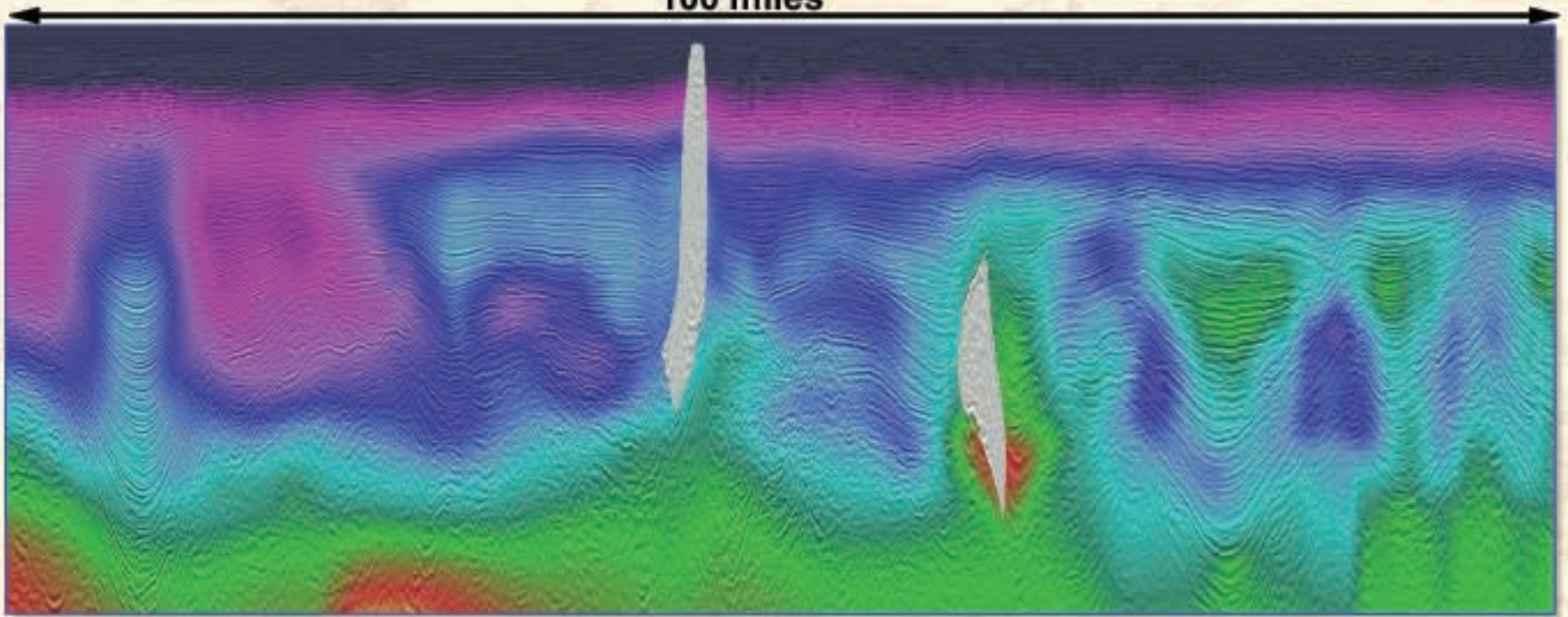
Please log on to the DEG Web page at <http://deg.aapg.org/committees.cfm> and determine how you want to participate to make the Division of Environmental Geosciences a better organization for all its members!

– STEVEN TISCHER

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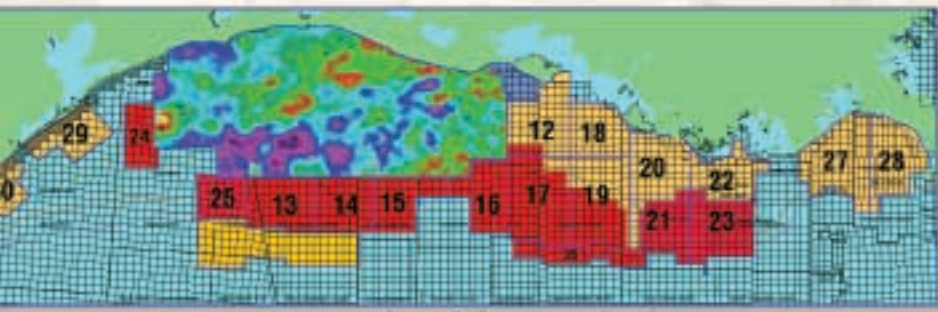
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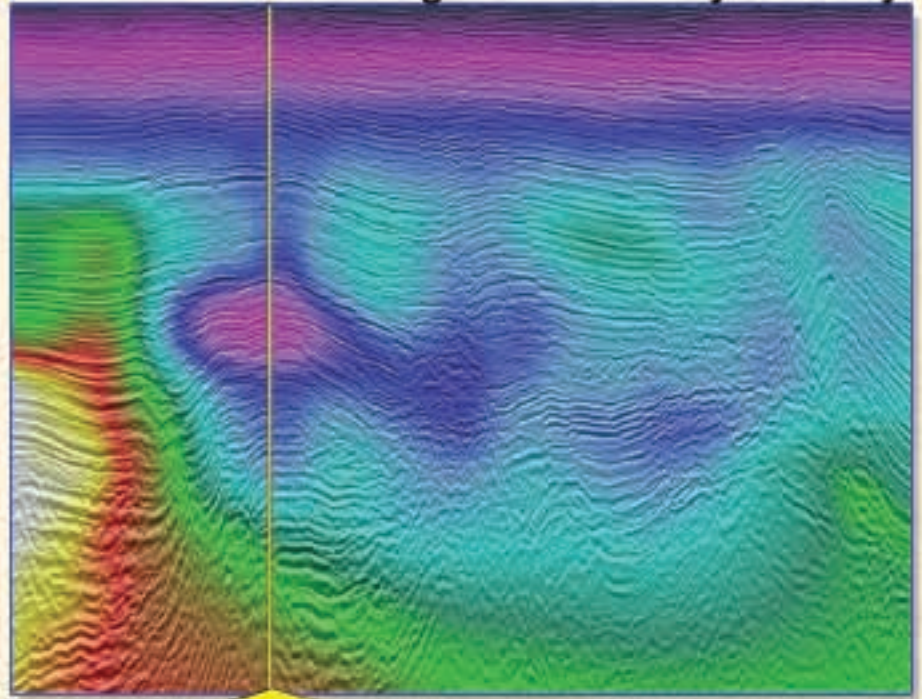
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A. Flat Depth Gathers for:

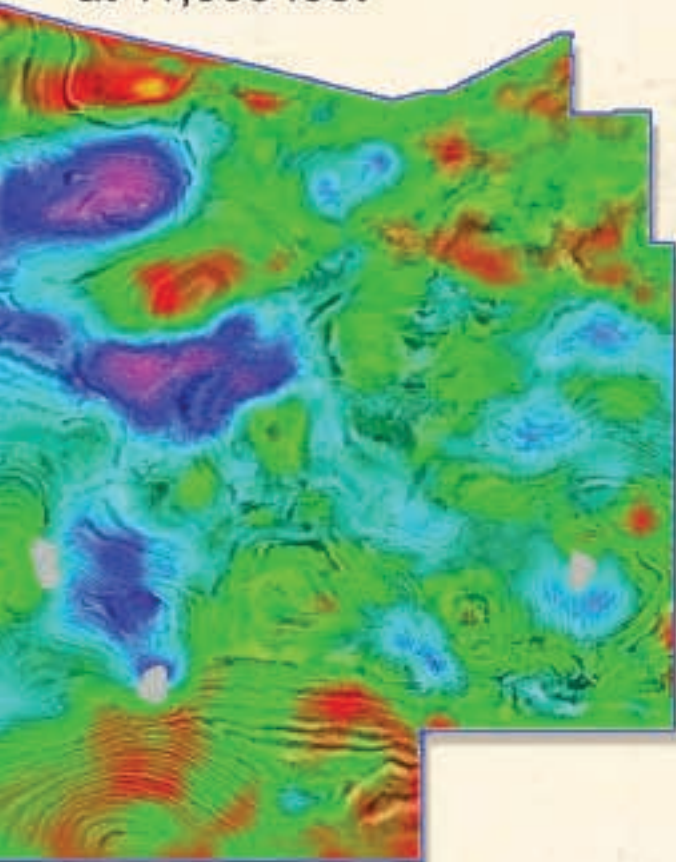
1. Better Structural Image
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Inline Stack With Migration Velocity Overlay

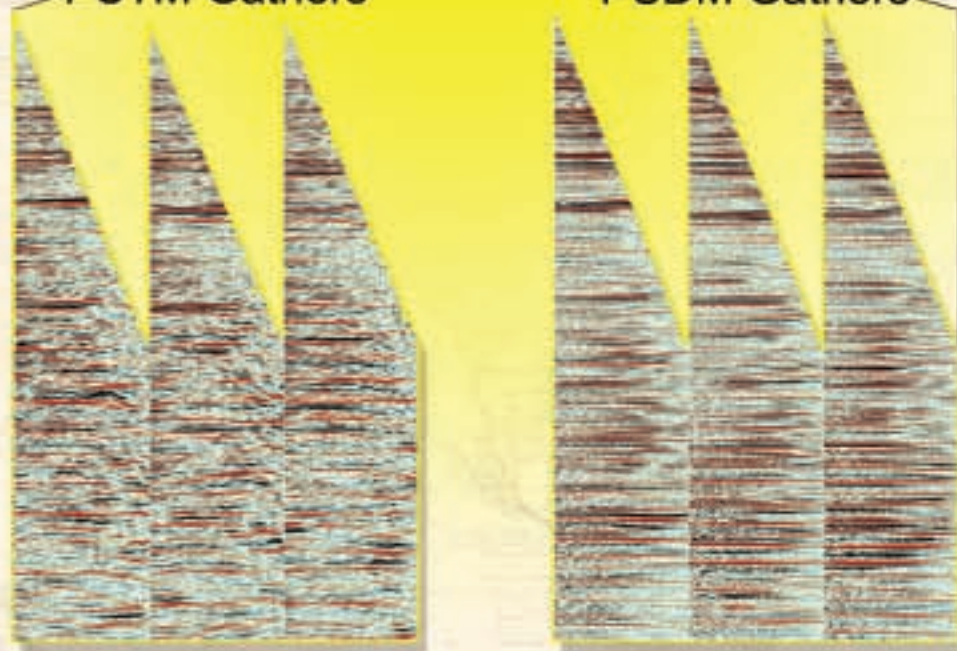


Depth Slice with
Velocity Overlay
at 11,000 feet

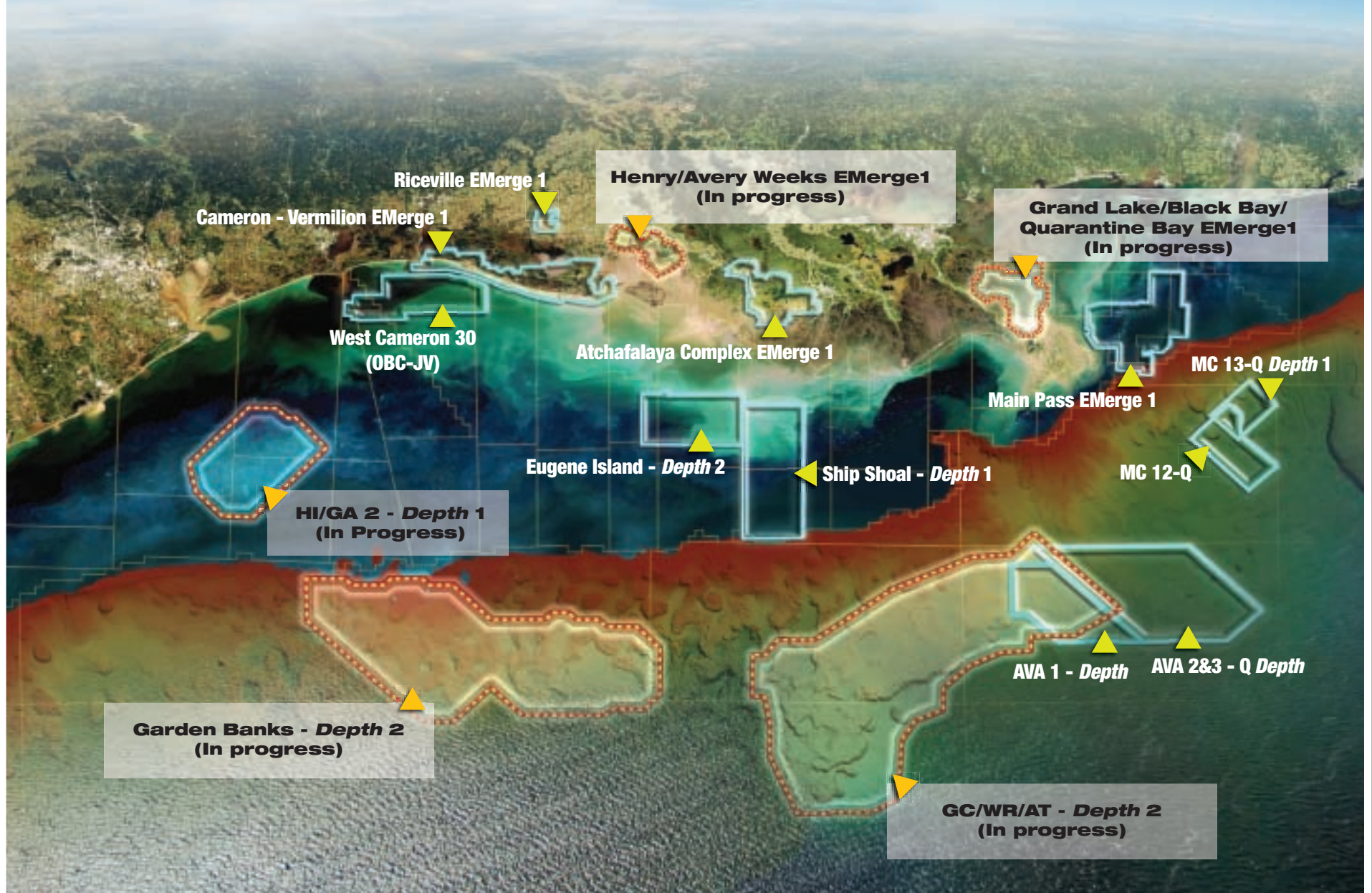


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