AAPG EXPLORER
APRIL 2010

The Mother Lode

AAPG turns its spotlight toward the prolific Gulf of Mexico

AAPG Annual Convention & Exhibition

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS
AN INTERNATIONAL ORGANIZATION

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AAPG EXPLORER

PRESIDENT'S COLUMN

Business, science and politics

Having Your Cake and Eating It, Too

By JOHN C. LORENZ

U.S. Secretary of Interior Ken Salazar recently justified restrictions on leasing* by saying that "the public lands and oil and gas resources are owned by the American citizens. They are not owned by the oil and gas companies," and that he didn't want those lands "tarnished."

"Tarnished" invokes an anachronistic image of the oil and gas industry from a century ago, of acres of back-to-back wooden oil derricks with rickety boardwalks across the open pools of oil between them, whereas modern drilling practices and regulations have progressed to the point where they are arguably environmentally friendly. Drilling structures are temporary, chemicals are contained and many are water-based, and even the old and undeniably tarnished Spindletop-type landscapes are being both reclaimed by nature and restored by government and industry.

The land and resource ownership issue also is worth examining. The resources that belong to the citizens of a country don't do those citizens a bit of good if the lands are put off limits and the subsurface resources are left in the ground. They only become valuable when they are made publically available. Citizens heat their homes and move their cars with the extraction products, and they want to do so inexpensively. Since they can't shovel the products out of the ground themselves like old-time bearded prospectors panning for gold, they pay industry to do it. And for industry, the balance between expense and revenue is a real constraint: Overall cash flow must be positive or the industry folds, whereupon employees and investors don't get paid and citizens have to look elsewhere for the resources.


LORENZ

> "The public, through the industry, can use the land and still have it; they're not mutually exclusive."

Increased regulation usually translates to increased drilling expenses, and since industry can't operate at a loss, the added cost must inevitably be passed on to the consumer. When that happens, the consumer complains to the government, and the government feels compelled to impose further restrictions or punitive taxes on the producers, and we all chase each other around in merry circles.

It's all very confusing if one has been trained as a geoscientist to look for a certain logic to the world, but it makes some sense if recognized as political action superimposed awkwardly onto business practices that were not designed for it. It certainly ain't science.

Citizens and government alike would like to have their cake and eat it, too, and while this phrase usually implies naiveté and greed, in this case it is actually possible and in fact beneficial to all concerned. The public, through industry, can use the land and still have it; they're not mutually exclusive. Oil and gas production does not consume the land because during and after production the land is still there and it still belongs to the public. Moreover, the land yields value through production of the minerals, not from the mere fact that it has a mineral content. As a bonus over and above a supply of oil and gas at reasonable prices for the public, the value added by production includes high-paying jobs and significant financial contributions to government treasuries – oil and gas royalties have comprised as much as a fifth of the annual income to the general fund of my home state of New Mexico.

The bone of contention in the discussion lies in how the balance between the value of these benefits and possible degradation in the land surface during production is calculated. In some calculations the impact on the land surface is suggested to significantly outweigh the value of the resources; the proportions are reversed if calculated using different assumptions. A drill rig on site for three months is either a visual travesty or an ephemeral monument to the betterment of civilization. One side wants no changes, the other sees inevitable change as benefitting a variety of entities and people.

These comparisons are hard to quantify, and politics are more visceral than logical anyway. Ironically, those who want to make it more punitive and thus more expensive to drill are often the ones who decry the cost of oil and gas.

There is a compromise, though extremists at both sides argue that it's not, in environmentally responsible development of the resources. One model is Ted Turner's Vermejo Ranch in the Raton Basin of northern New Mexico (see www.vermejoparkranch.com), which derives significant income from royalties on gas production from low-profile facilities. The royalties are used in part to underwrite significant conservation efforts.

AAPG has a variety of programs intended to inform the public and governments about what we do and the value that we, our science, and our industry bring to society. Official programs include the AAPG Communications Department, the AAPG Public Outreach Committee, and the AAPG GeoDC office. Less directly, the AAPG BULLETIN and other publications help establish and maintain a scientific reputation that gives us credibility in other areas. Finally, each of us is an ambassador for our organization. Spread the word that geologists have fun doing important work. What other science can be done successfully over spirits and sketches on a tablecloth in hole-in-the-wall restaurants in interesting parts of the world?

*Tulsa World, January 26, 2010, Chris Casteel/The Oklahoman, "Salazar defends energy policy."

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The new AAPG Memoir 90, "Petroleum Systems in the Southern Gulf of Mexico," will be available at the AAPG Bookstore in New Orleans – and online at any time. Photo by Memoir 90 co-editor Claudio Bartolini.

REGULAR DEPARTMENTS

ON THE COVER:

An image taken by the Landsat 7 satellite (pre-Katrina) shows the Birdfoot Delta as the Mississippi River makes its way to the Gulf of Mexico – not too far from the site of this month's AAPG Annual Convention and Exhibition in New Orleans. Several stories throughout this issue deal with both the Gulf and information that will be presented during the meeting. Photo courtesy of NASA and the U.S. Geological Survey. Inset photos courtesy of BP (Thunder Horse, top) and Claudio Bartolini (see box, left).

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Uncertainty chills decision making

Salaries Show 5 Percent Increase

By LARRY NATION, AAPG Communications Director

In the face of laggardly oil and gas prices over the past year, salaries for petroleum geologists rose 5 percent overall in 2009-10 – about double from the previous year's increase, according to the annual AAPG Salary Survey.

If there were a contest to describe the 2009 upstream oil industry in one word, "uncertainty" would certainly be in the top 10 – and this created hesitancy in the human resource departments, according to Mike Ayling, of MLA Resources of Tulsa.


AYLING

The uncertainty had a dampening effect on pay raises and hiring plans, said Ayling, who has conducted the annual salary survey for AAPG since 1981.

"There was less job movement, fewer raises and lower bonus expectations as the year progressed," Ayling said. "Most everyone remains very conservative in their staffing decisions."

The survey revealed that 0-2 and 3-5 year experience levels showed little change in salary ranges, but also that those groupings contain relatively few individuals, Ayling said. He also noted geologists with over 25 years experience reported an 8.8 percent salary increase, indicating a desire of the companies to hang on to proven explorationists.

There also have been limited manpower reductions with most trimming coming from the companies' use of consultants, he said.

Ayling also detected the uncertainty is having a chilling effect on the mobility in the work force, with explorationists choosing to stay where they are.

"The seasoned workers are getting some good pay and are hesitant to leave," Ayling said. "Meanwhile the younger workers are in the same boat – plus they are seeing the boss getting older and sensing their upward mobility chances are good without having to change companies to advance."

All the while, companies are content not to make many more hires.

"There is a lot of pressure to get the job done with fewer people as hiring budgets are put on hold," Ayling said.

The annual salary survey is based on employed, salaried geoscientists and is based on salaries alone. It does not include bonuses, employee benefits, autos or other perquisites.

It does not attempt to include anyone whose compensation is in the form of consulting fees, retainers or overrides.

The survey also is based on U.S. salaries only, considered the "gold standard" for the industry. The measurement for international salaries for explorationists is virtually on a country-by-country, case-by-case basis, Ayling said, which makes statistical averaging non-productive beyond the boundaries of any specific country.

Ayling added that many ex-pats are paid U.S.-based salaries, while the national oil companies opt to pay compatriots on a different, lower scale.

As for the near-term, Ayling said, "We have yet to see the impact of several mergers or property sales that will close later this spring.

"I suspect that there will be only a modest fallout," he added, "as companies redeploy workers, and a few senior staff will simply retire with their severance pay."

2009 Geological Salary Survey

YEARS EXPER	HIGH	AVERAGE	LOW
0-2	$ 99,800	$ 87,600	$ 70,000
3-5	153,900	105,600	68,000
6-9	147,000	121,700	91,000
10-14	160,700	123,500	102,500
15-19	211,500	150,000	96,000
20-24	270,400	180,000	96,500
25+	600,000	186,800	100,000

Average Salary By Degree

YEARS EXPER	B.S.	M.S.	Ph.D.
0-2	$ 76,100	$ 93,200	$ 99,800
3-5	99,800	99,500	153,900
6-9	95,300	141,800	132,400
10-14	110,300	127,400	112,500
15-19	118,000	159,800	149,300
20-24	150,000	168,300	270,000
25+	189,900	187,500	169,600

Historical Averages Salary

YEARS EXPER	2001	2002	2003	2004	2005	2006	2007	2008	2009
0-2	$ 64,000	$ 65,000	$ 65,600	$ 67,800	$ 74,400	$ 82,200	$ 82,800	$ 83,600	$ 87,600
3-5	67,500	71,200	67,700	75,600	81,300	89,600	107,800	108,000	105,600
6-9	74,500	78,300	75,700	78,800	95,400	98,500	121,100	118,400	121,700
10-14	95,000	96,600	91,900	107,500	114,400	111,500	119,800	121,900	123,500
15-19	99,400	102,500	102,500	116,000	119,600	141,000	151,600	139,400	150,800
20-24	111,600	113,900	118,100	112,800	139,000	155,000	167,400	176,800	180,300
25+	124,000	126,900	125,100	128,300	134,100	149,900	162,800	171,700	186,800

Deals were plentiful, participation was strong and spirits were high at the recent NAPE event at the George R. Brown Convention Center in Houston, an annual prospect and property expo co-sponsored by AAPG. This year's event attracted 1,638 booths and 13,550 people.

Online Voting for AAPG Officers Continues

Balloting for AAPG officer candidates for the 2010-11 term continues to be available online through May 15 at 11:59 p.m. CDT.

While electronic balloting is available to all members a paper ballot also will be sent. Survey and Ballot Systems' coded system allows only one ballot per person, with the paper ballot taking precedence if both are submitted.

Biographies continue to be available at www.aapg.org.

This year's slate of candidates is:

President-Elect

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

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

Vice President-Sections

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

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

Treasurer

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

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

Editor

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

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

Division Candidates

Officer candidate slates for the three AAPG divisions have been approved by the AAPG Executive Committee.

Voting for all three will begin this month and continue through May 15, with the winners beginning their terms on July 1. President-elect winners will serve one year in that capacity and then will serve the next year as division president.

The candidates are:

DEG

President-Elect

❒ **E. Charlotte Sullivan**, Battelle, Richland, Wash.

❒ **Douglas C. Peters**, Peters Geosciences, Golden, Colo.

Vice President

❒ **Robert Maric**, MTE Consultants Inc., Kitchener, Canada (unopposed).

Editor

(two-year term)

❒ **Kristin Carter**, PA DCNR, Bureau of Topographic and Geologic Survey, Pittsburgh (unopposed).

DPA

President-Elect

❒ **Martin D. Hewitt**, Nexen Petroleum USA, Plano, Texas.

❒ **Craig W. Reynolds**, Cobra Oil & Gas, Wichita Falls, Texas.

Vice President

❒ **Alfred H. Baker**, Beacon Exploration, Metairie, La.

❒ **William T. Goff**, Cholla Production, Littleton, Colo.

Treasurer

(two-year term)

❒ **Daniel A. Billman**, Billman Geologic Consultants, Mars, Pa.

❒ **W. David Hart**, Charta Resources, Shreveport, La.

EMD

President-Elect

❒ **Arthur H. Johnson**, Hydrate Energy International, Kenner, La.

❒ **Stephen M. Testa**, consultant, Mokelumne Hill, Calif.

Vice President

❒ **Maria M. Mastalerz**, Indiana Geological Survey, Bloomington, Ind.

❒ **Genevieve B. Young**, Colorado Geological Survey, Denver.

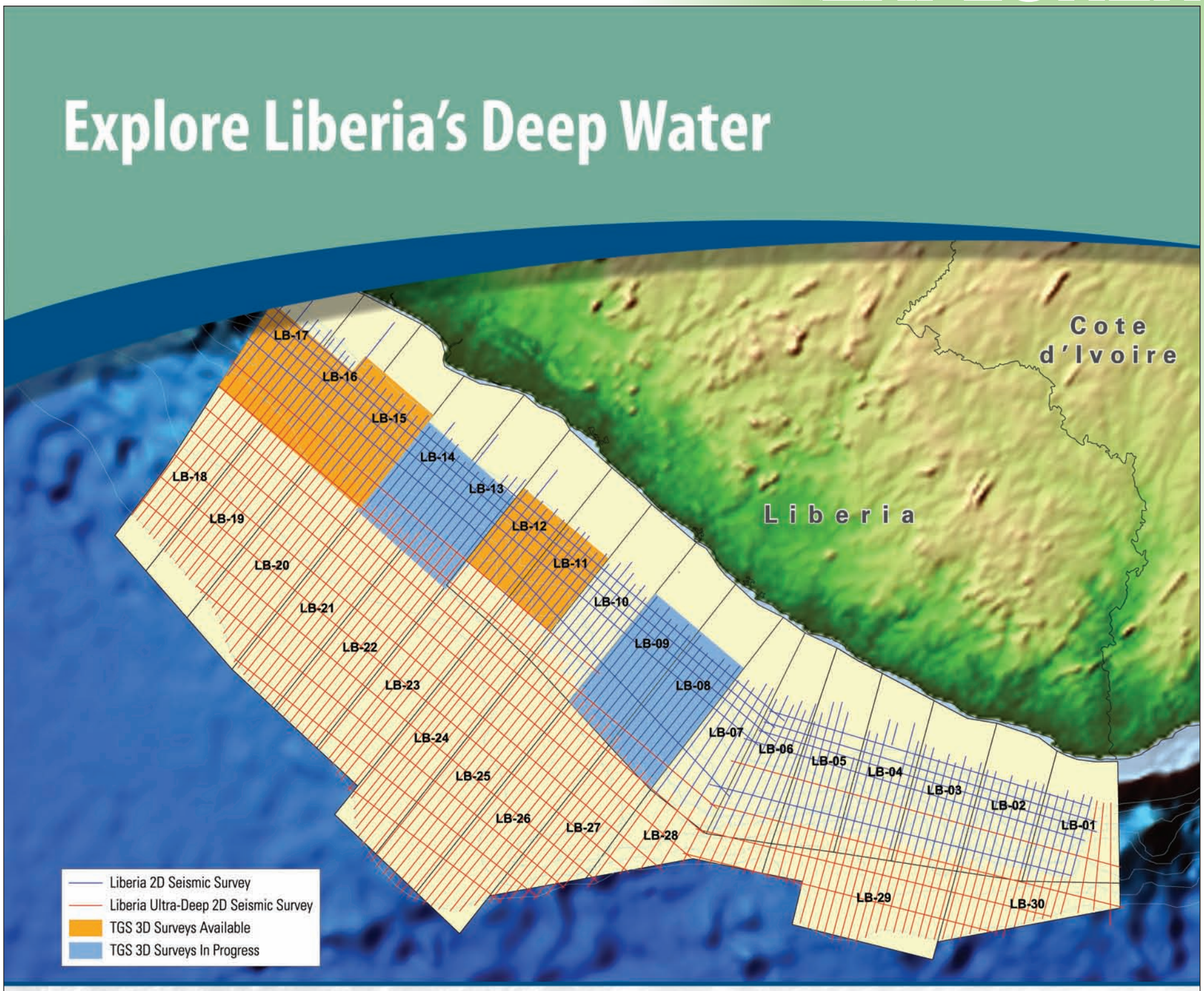
Secretary

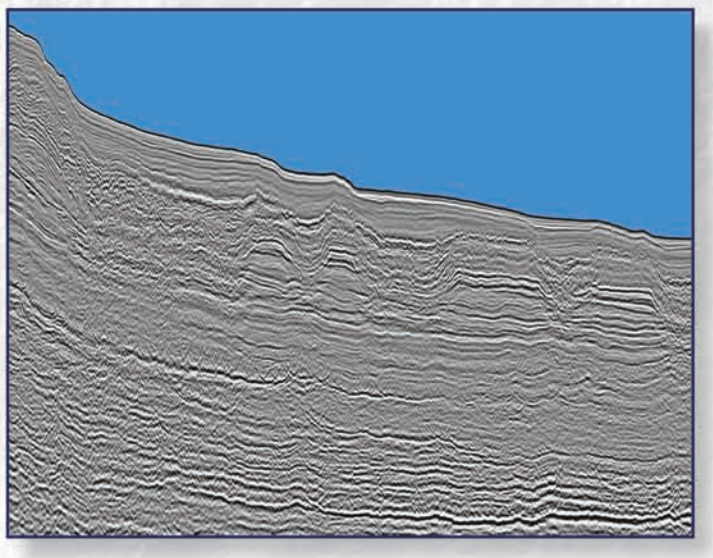
(two-year term)

❒ **Frances J. Hein**, Alberta Energy Research Conservation Board, Calgary, Canada.

❒ **David E. Tabet**, Geological Survey of Utah, Salt Lake City.

Explore Liberia's Deep Water





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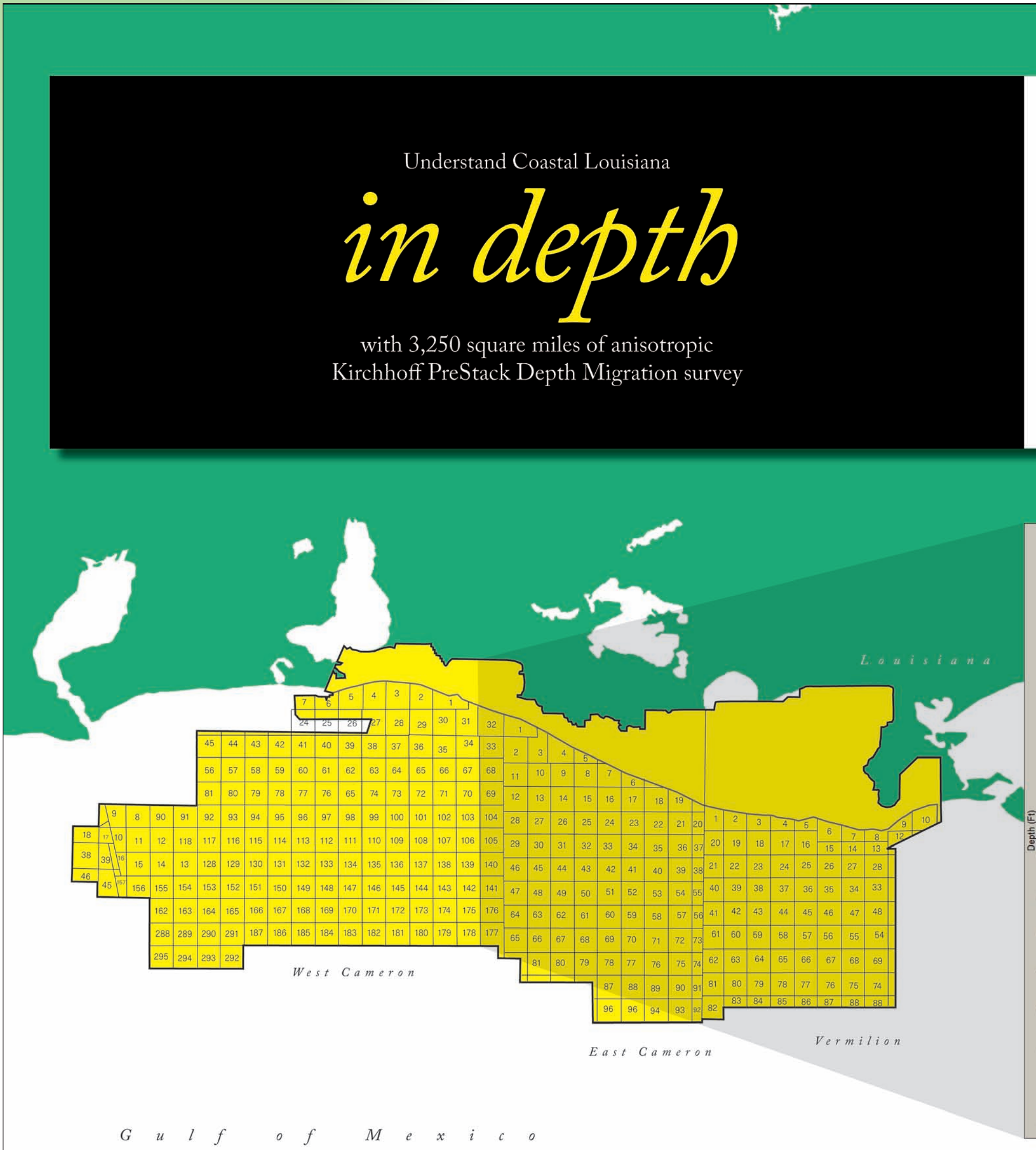

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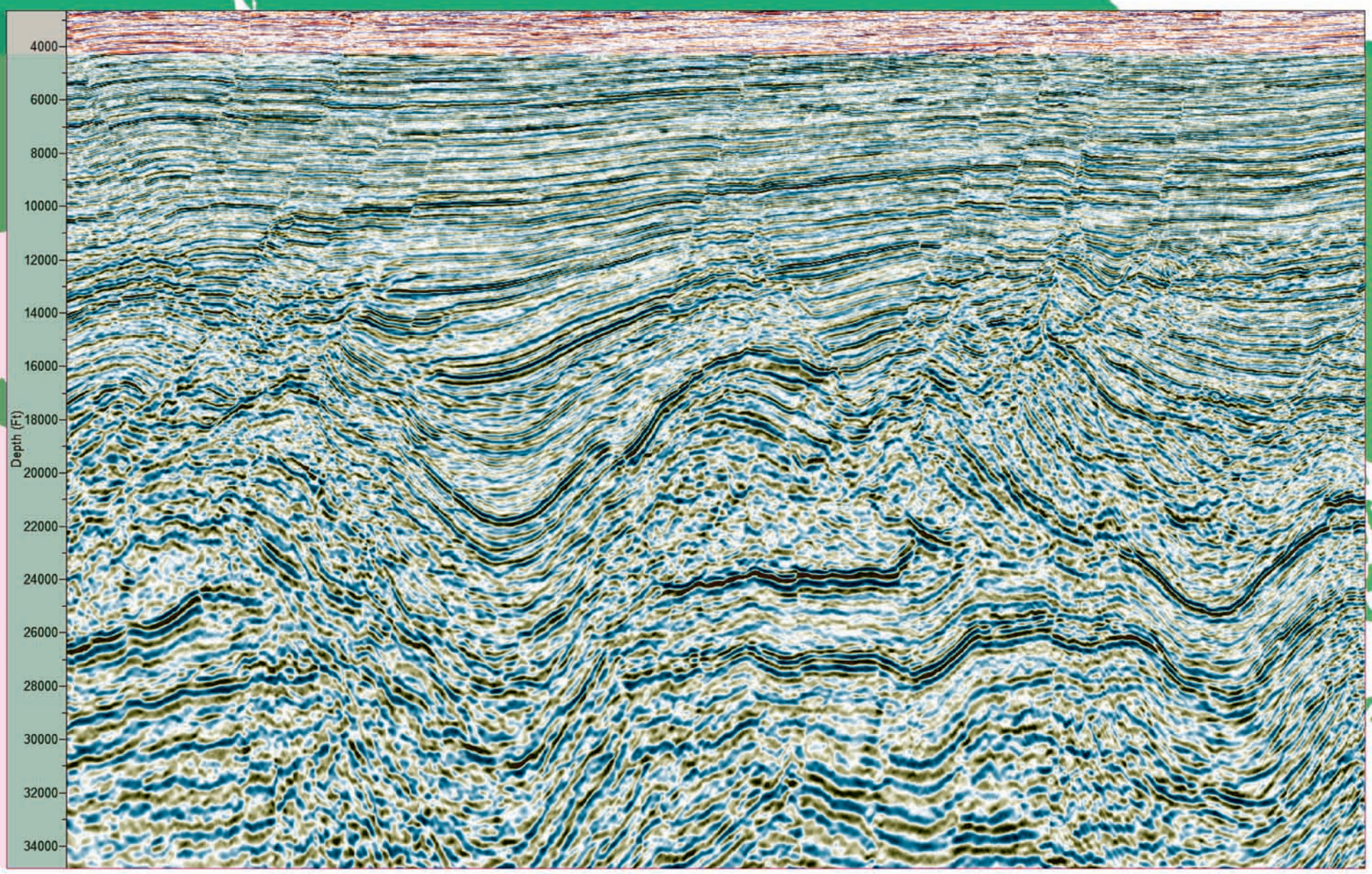

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Unmasking the Potential

ACE Program Promises to be Aces

By VERN STEFANIC, EXPLORER Managing Editor

The big show is heading for the Big Easy this month – and expect a lot of heads to turn at the big doings that are planned.

The 95th AAPG Annual Convention and Exhibition will be held April 11-14 at the Ernest N. Morial Convention Center in New Orleans – the fifth time the Crescent City has served as AAPG's hosts, and the first time since 2000.

"Unmasking the Potential of Exploration and Production" is the theme for a comprehensive, world-class technical program that boasts eight concurrent sessions, nearly 450 oral presentations and more than 500 posters – all complemented by an exhibits hall jammed with more than 230 exhibitors.

Throw in the historical, cultural and musical dynamics that make New Orleans one of the world's unique cities – with a lot of tours and trips planned to take advantage of the setting – and it seems as if there's almost too much to do. Almost.

"Clearly it is impossible to see and hear everything you like, so you have some difficult choices ahead of you," said convention general chairman Tom Hudson. "To make things somewhat easier we have arranged some great events with far fewer potential conflicts."

Included in those "great events" are a host of high-profile luncheon speakers, news-making forums and special sessions and a plethora of papers that will cover the industry's most urgent and important topics.

An impressive technical program and large exhibition hall offering the latest in technology and data awaits attendees of this year's AAPG Annual Convention and Exhibition in New Orleans.

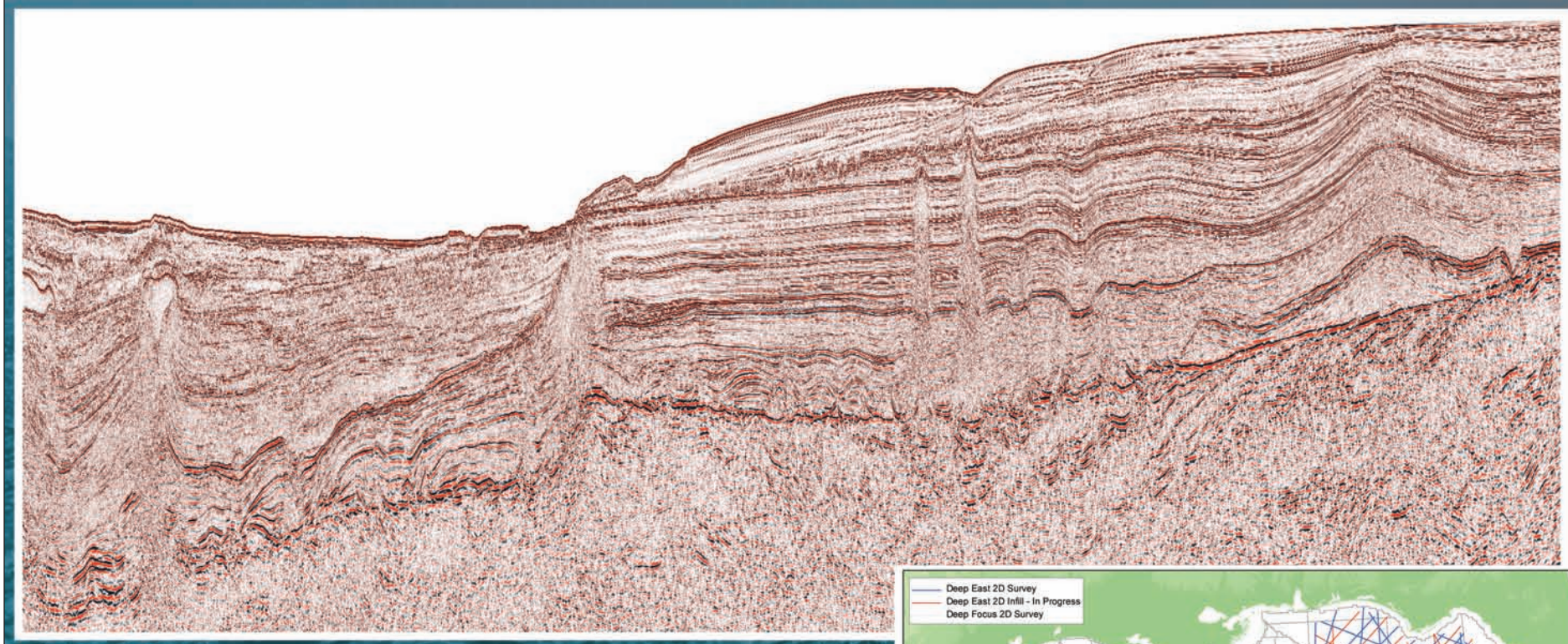
That list includes:

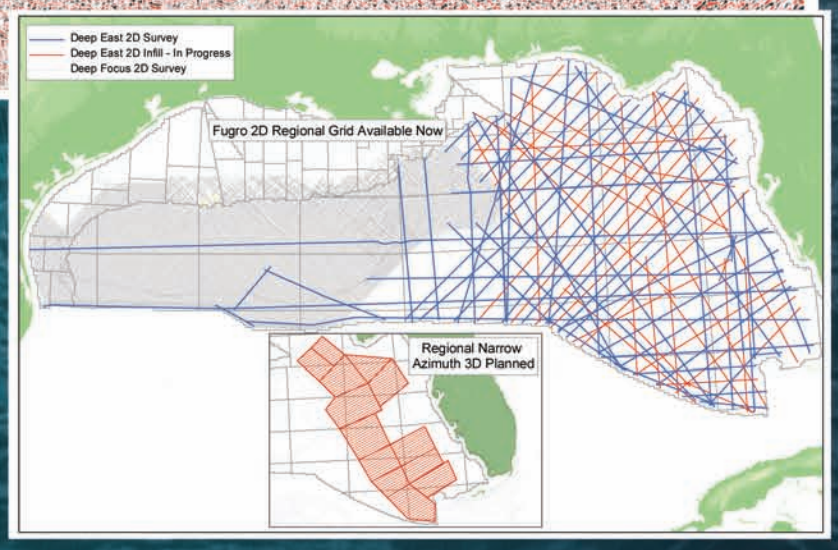
- This year's Michel T. Halbouty Lecture, which will take place at 5:10 p.m. Monday, April 12, featuring **Aubrey K. McClendon**, CEO, chairman and co-founder of Chesapeake Energy Corp., speaking on "Shale Gas and America's Energy Future."
- The **Discovery Thinking Forum**, set for 1:25 p.m. Monday, April 12, the third presentation in AAPG's "100 Who Made a Difference" program. The Marcellus Shale play, the Haynesville Trend, the Amoruso Field and the Eagle Ford Shale are just some of the subjects that will be covered. (See related story, page 40.)
- **Robert "Bobby" Ryan**, vice president of global exploration for Chevron Global Upstream and Gas, will be the All Convention Luncheon speaker, talking about "Beyond Zone Six: The Imperative of Unconventional Thinking."
- **James R. Moffett**, co-chairman of the board of McMoRan Exploration Co., will give a paper on "Davy Jones," the recent blockbuster Gulf of Mexico discovery, at 11:30 a.m. Tuesday, April 14 – just one of several talks that will spotlight the huge potential of the Gulf's shallow water ultra-deep shelf play. (See related story, page 14.)
- A special forum on **climate change** – a lightning rod for geoscientists on all sides of the debate – will be held at 1:15 p.m. Wednesday, April 14. (See related story, page 42.)

"It is going to be a fantastic convention – great science and great social events in a great city," Hudson said. "This promises to be one of the best conventions you've ever attended."

The meeting starts in earnest with the opening session, a colorful and fast-moving program that features videos, historic photos and live music as well as words of welcome from Hudson, the presidential address by **AAPG President John Lorenz** and the presentation of AAPG honors and awards – including presentation of the Sidney Powers Memorial Medal to **L. Frank Brown Jr.** (See related story, page 24.)

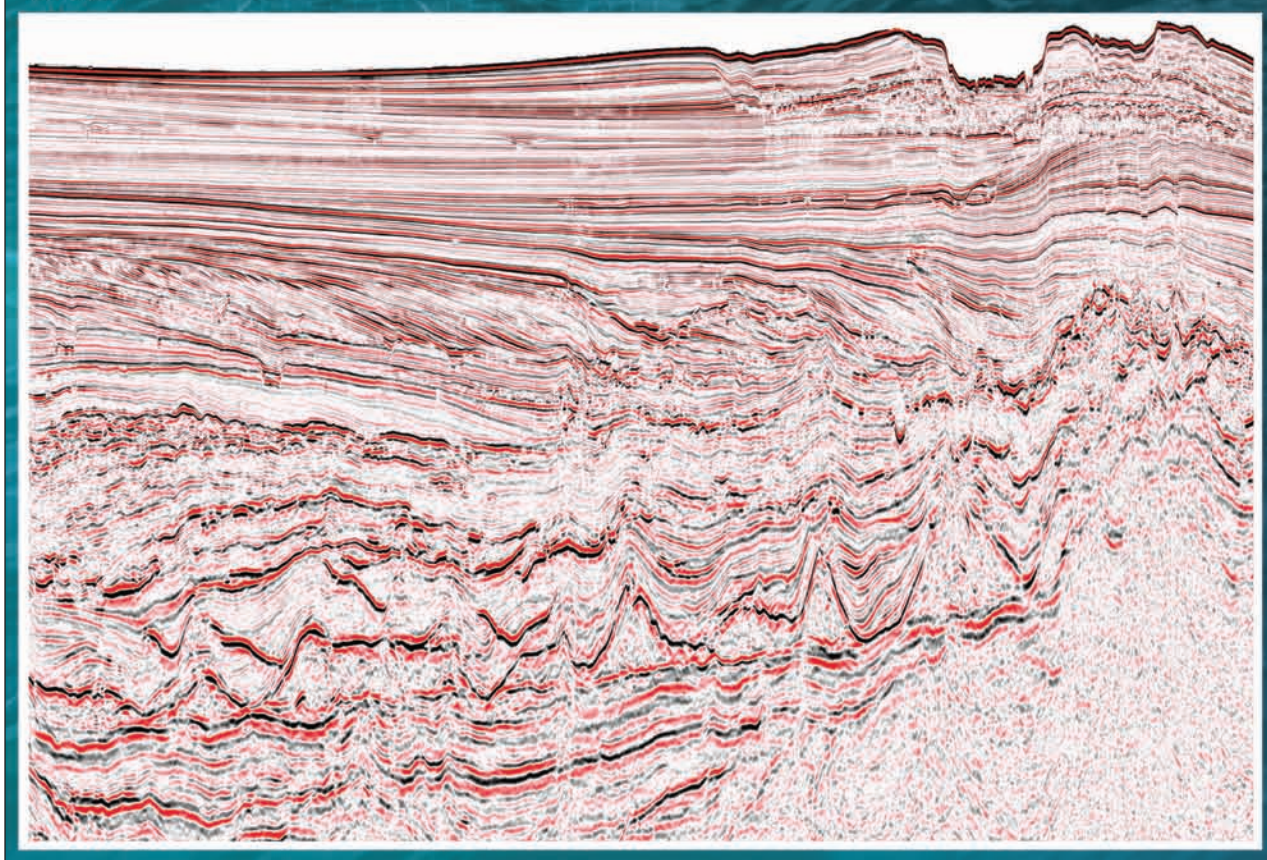
Data Available!





Gulf of Mexico

Brazil



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FUGRO

A new frontier?

Davy Jones: Shallow Water, Deep Treasure

By LOUISE S. DURHAM, EXPLORER Correspondent

Mention of the legendary Davy Jones conjures up different meaning for different folks.

Gulf of Mexico explorers have their own unique take on the name.

For them, Davy Jones has become synonymous with opportunity.

It's all about McMoRan Exploration's recent colossal discovery of what might best be dubbed buried treasure in the ultra deep horizons on the shallow water shelf of the Gulf.


MOFFETT

The Davy Jones prospect discovery well, operated by McMoRan in 20 feet of water off the coast of Louisiana at South Marsh Island Block 230, has been logged with pipe-conveyed wireline logs to 28,530. A total of 200 net feet of hydrocarbon bearing sands has been identified in six zones of the Wilcox section of the Eocene-Paleocene.

The well, which was a re-entry of a previously abandoned wellbore, is reported to have tapped into an estimated two to six Tcfe of reserves, according to some industry analysts.

Upon confirmation via development, Davy Jones is positioned to be one of the largest discoveries on the GOM shelf in decades. The scuttlebutt in the industry is that it has the potential to open up a whole new exploration frontier in the ultra-deep (>25,000 feet) horizons on the shallow water shelf.

To date, only seven wells have been drilled to a TVD of 25,000-plus feet in this region, according to veteran geologist and explorer James R. "Jim Bob" Moffett, co-chairman of the board at McMoRan.

The outgoing, often amusingly salty-tongued Moffett long has been recognized as an expert in the onshore Miocene. Known for its prolific production in this region, the Miocene doesn't stop at the shoreline – and go-getter Moffett saw good reason to venture out into the shallow water Gulf to explore for deep gas.


McMoRan's recent Davy Jones discovery, already being called one of the largest discoveries on the Gulf of Mexico's shelf in decades, will be in the spotlight in New Orleans.

A notable result of this effort is McMoRan's Flatrock Field at South Marsh Island Block 212, where six wells currently produce over 300 MMcfe/d gross from the Miocene, with over 55 MMcfe/d net to McMoRan.

Given the expertise Moffett has honed over the years – sometimes relying on "Jimbob-ology" along with textbook geology – and the company's success playing the shallow water deep gas, taking on the challenge of exploring the ultra-deep horizons was a kind of no-brainer.

McMoRan's deep gas play focuses on large structures above the salt weld, i.e. listric fault, in the deep Miocene. The ultra-deep play targets objectives below the salt weld in the Miocene and older sections that have been correlated to those productive sections seen in deepwater discoveries by other companies.

Common Ground

The Davy Jones prospect was part of the package when McMoRan snapped up the Newfield GOM shelf properties in 2007. The deal also included the rights to the Blackbeard project, where the Blackbeard West well in 70 feet of water at South Timbalier Block 168 had been temporarily abandoned by operator ExxonMobil after reaching 30,067 feet measured depth.

This ultra-deep trend was previously dubbed the Treasure Island play – hence the exotic pirate nomenclature that appears to be right-on given the bounty apparently awaiting the drillbit.

Even though the GOM is one of the most mature provinces in the United States, both the deep gas and the ultra-deep gas plays are vastly unexplored.

See **Davy Jones**, page 16

James R. Moffett, co-chairman of the board for McMoRan Exploration Co., will give a paper titled "Davy Jones – A Major Wilcox Discovery and Its Implications for the Ultra-Deep Shelf Play in the Gulf of Mexico's Shallow Waters," at 11:30 a.m. Tuesday, April 13, at the AAPG Annual Convention and Exhibition in New Orleans.

Moffett's talk is part of a four-paper session titled "Plays." Other papers are:

- **R. Sassen** – "Jurassic Condensate from Hudson Canyon, Baltimore Canyon Trough U.S. Atlantic."
- **Donald Frye** – "South Louisiana – Today and Tomorrow."
- **Randol Haworth** – "Ultra-Deep Play on the Gulf of Mexico Shelf."

Depth poses sandstone questions

Looking Deep in the Shelf Reveals More Prospects

By LOUISE S. DURHAM, EXPLORER Correspondent

James R. "Jim Bob" Moffett, co-chairman of the board at McMoRan Exploration, likes to say he cut his teeth on the onshore Miocene.

The veteran geologist and explorer eventually moved outward onto the Gulf of Mexico shelf to make the most of the deep Miocene techniques he had honed in the onshore environment.

It proved to be a smart move.

Following successes in the shallow water deep gas, such as the high-profile Flatrock Field at South Marsh Island, it was only natural for McMoRan to move on to explore the ultra deep horizons below 25,000 feet.

As a result, Moffett et al currently are reveling in being in the midst of some major rockin' action at their latest gig dubbed Davy Jones.

The company's recent ultra deep discovery at the Davy Jones prospect was drilled to 28,603 feet and encountered total possibly productive net sands as much as 200 feet in six zones in the Wilcox section of the Eocene-Paleocene.

It could be one of the largest discoveries on the Gulf shelf in decades – and this may be only a hint of what's to come.

In its exploration program looking for ultra-deep prospects on the shelf, McMoRan has identified several deep large structural features below a regional salt weld, with drilling targets that range from Middle Miocene to Lower Paleocene.

The deep structures identified were interpreted on regional 2-D seismic data, on pre-stack time migrated 3-D seismic data and proprietary reprocessed pre-stack depth migrated 3-D seismic data, according to the company authors of a paper scheduled for presentation at the annual AAPG meeting in New Orleans.

They noted that available deep well data were utilized to calibrate the geologic model for the section above the salt weld.

They commented also that the ultra-deep prospects are similar to deep, large sub-salt structural traps in the deepwater Gulf with reservoirs of Middle Miocene to Lower Paleocene age at depths below 20,000 feet subsea.

These reservoirs in both the deep water and the shelf were deposited in deepwater depositional environments.

Sand risk, including preservation of porosity and permeability with depth of burial, is a major risk factor for deep sandstone reservoirs in the shallow water areas of the Gulf of Mexico shelf.

Prior to Davy Jones, McMoRan re-entered the Blackbeard well in South Timbalier Block 168 and deepened it from 30,067 feet measured depth (MD) to 32,997 feet MD. The well discovered four hydrocarbon-bearing intervals within the Miocene section.

The company intends to drill additional ultra-deep wells in 2010.

AAPG member Randol Haworth, with McMoRan in Houston, will give a paper titled "Ultra-Deep Play on the Gulf of Mexico Shelf," at 11:10 a.m. Tuesday, April 13, at the AAPG Annual Convention and Exhibition in New Orleans.

Haworth's co-authors are AAPG member Peter Menard and G. Denyer, with McMoRan in Houston, and E.C. McDade, with McMoRan in New Orleans.

Haworth's talk will precede James R. Moffett's paper on "Davy Jones – A Major Wilcox Discovery and Its Implications for the Ultra-Deep Shelf Play in the Gulf of Mexico's Shallow Waters."

Reconsidering the Gulf

McMoRan Exploration's recent ultra-deep major discovery tagged Davy Jones has generated considerable buzz in the industry and on Wall Street.

The geologic information revealed by the well, combined with other wells' data, is redefining the subsurface geologic landscape below 20,000 feet on the Gulf of Mexico's shallow water shelf, according to James R. "Jim Bob" Moffett and Richard Adkerson, co-chairman at McMoRan.

Significant points about the discovery include:

- Wireline logs indicated 200 feet of net pay in six zones in the Wilcox section of the Eocene/Paleocene.
- All of the zones were full to base.
- Sands logged below 27,300 feet appear to be some of the highest quality Wilcox sands in the GOM.
- Flow testing will be required to confirm the ultimate hydrocarbon flow rates from the six separate zones.

Interest in shallow-water deep-under-seabed gas was evident by the bids submitted at the Gulf of Mexico lease sale in late March.

Bids were received for 151 tracts in waters 650 feet deep or less, the Minerals Management Service said. That represents 32 percent of all tracts bid upon, an increase from the 2009 sale.

– LOUISE S. DURHAM

Davy Jones
from page 14

Moffett noted that the Davy Jones well hit Eocene Wilcox sands that appear to be exceptional quality, e.g., 20-plus percent porosity and 10-20 ohms resistivity. The well is 100 miles south of any control in the deep Wilcox and 100 miles north of the deepwater Wilcox play.

"We're talking about a rank wildcat in the middle of a very mature basin on a structure that covers 20,000 acres, four complete MMS sections," he said. "The terrain below the salt is brand new territory.

"What we think Davy Jones and Blackbeard and deep drilling have done out there is to change the whole shelf topography and redefine the subsurface geologic landscape below 20,000 feet on the Gulf shelf," Moffett said. "No one thought we'd be sitting here with this kind of opportunity.

"One of the biggest misconceptions we have is people think the shelf and the deepwater are two different geological provinces," he added. "They're not geological provinces, they're engineering provinces.

"On the shelf you have standard platforms and drill standard wells, and they have construction around and go to a common facility," Moffett noted. "Once you get below the salt weld, it's all one basin."

McMoRan deepened the Blackbeard well to 32,997 feet measured depth and found Miocene hydrocarbon-bearing sands. The top of the Wilcox is estimated to be below 34,000 feet.

"We haven't tested it because we're waiting on the outcome of Davy Jones and a few other things to be able to confirm the Miocene-Oligocene-Wilcox is the stratigraphic section we're going to see," Moffett said. "This basin is a lot more complex than we thought.

"But the data received to date from Davy Jones and Blackbeard West confirm McMoRan's original modeling," he emphasized, "which correlates the objective sections on the shelf below the salt weld in the Miocene and older age sections to those productive sections in deepwater discoveries made by others."

Beneath 25,000 feet is the fold belt of the Miocene that's been basically calibrated out in the deepwater, and Moffett noted that Davy Jones is "just a big old fold with four-way closure and not a salt dome with radial faulting."

Of course, this is in stark contrast to the traditional trapdoor normal fault tectonics of the shallower deep gas play.

Tip of the Iceberg

Special equipment must be acquired to complete and flow test Davy Jones given the super high temperatures and pressures in the ultra-deep environment. Securing this equipment, dealing with various MMS issues, etc., prior to testing will take time.

"It's going to take a lot of money," Moffett added.

Production and development activity will benefit from the shallow water location near existing infrastructure.

Davy Jones and Blackbeard likely are only the tip of the proverbial iceberg.

McMoRan is one of the largest acreage holders on the GOM shelf and onshore in the Gulf Coast area and has rights to approximately a million gross acres – including 150,000 associated with the ultra deep gas play below the salt weld.

The company has two rigs under contract capable of drilling to the target depths to enable an active ultra-deep drilling program in 2010. There are about a dozen drill-ready prospects, and future prospective wells in this play include Blackbeard East, Lafitte and additional opportunities in the Davy Jones area – including an appraisal well to the southwest of the Davy Jones discovery.

Even though McMoRan currently has only two data points – Davy Jones and Blackbeard – to help with decision making over a huge area, the company does have the benefit of a 3-D seismic data base tying together the whole shelf area.

If you have a hankering to get in on this action and do your own thing, be forewarned – and not just because most acreage on the shelf is HBP.

"If you don't understand the big picture, then you can't understand this play," Moffett emphasized.

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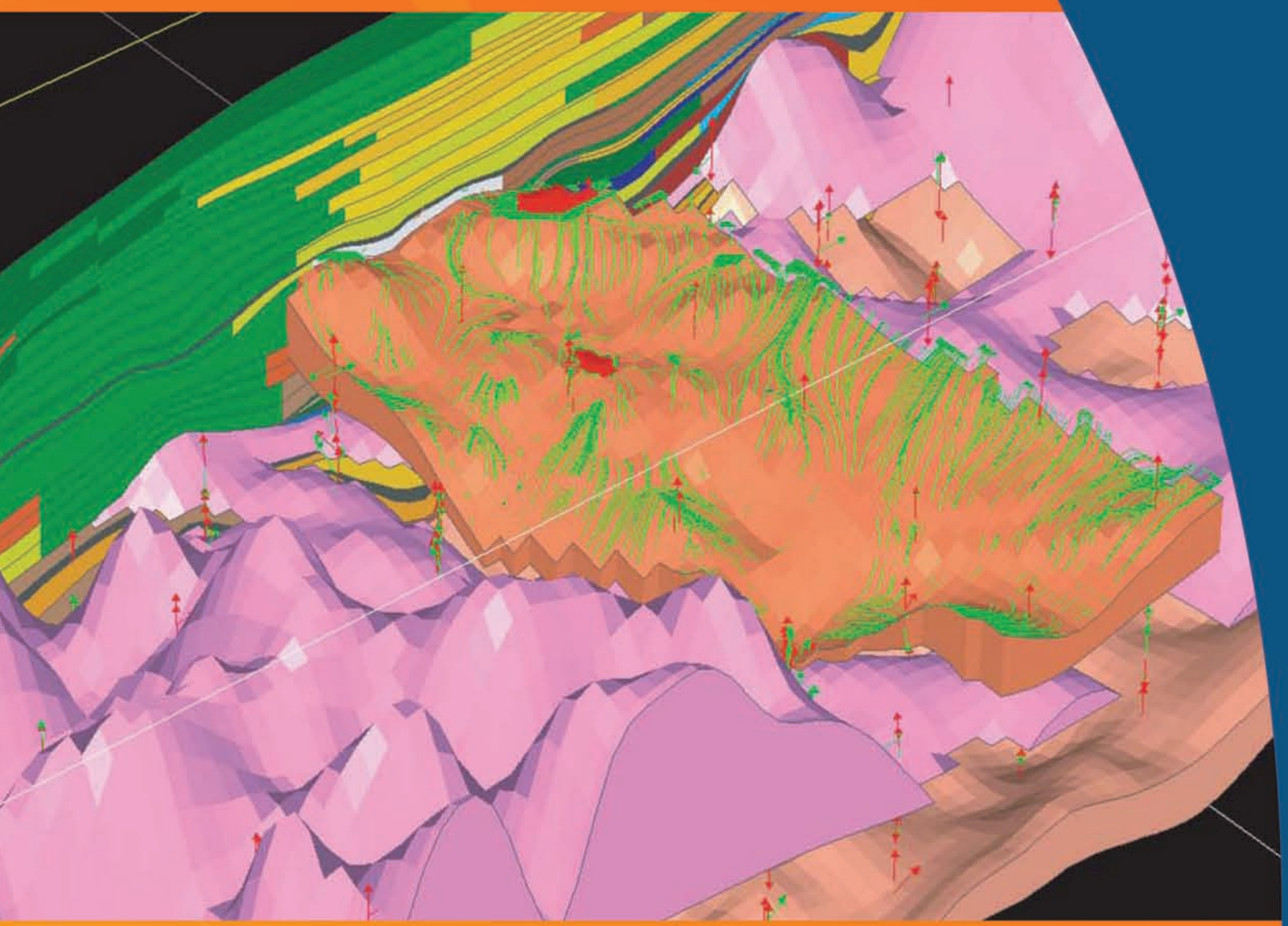

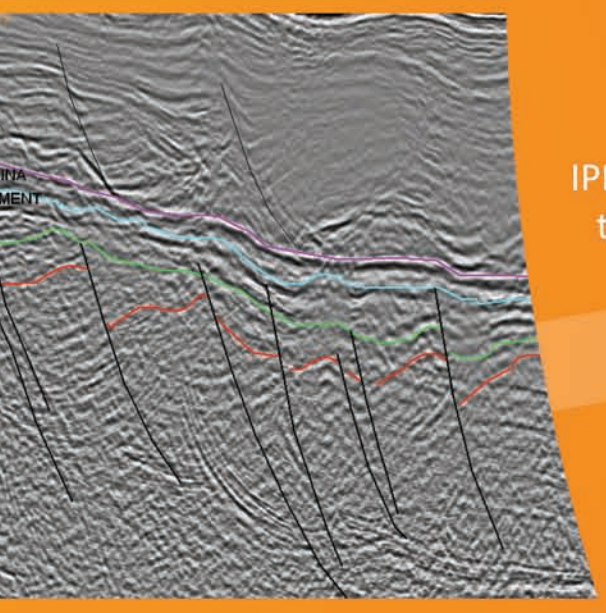

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47 awardees to be honored in New Orleans

Brown to Receive Powers Medal

By SUSIE MOORE, Communications Project Specialist

L. Frank Brown Jr., a leader in research and development of the concept of depositional system tracks, seismic stratigraphy and sequence stratigraphy, will receive AAPG's prestigious Sidney Powers Award at the AAPG Annual Convention and Exhibition in New Orleans.

Brown will be one of 47 people who will receive their honors during the meeting's opening session, set for 4 p.m. Sunday, April 11, in the La Nouvelle Orleans Ballroom of the Ernest N. Morial Convention Center.

This year's multi-media structured opening session also will feature welcoming remarks by general chair Tom Hudson; the presidential address from AAPG President John Lorenz; exciting videos, both before and during the event; and pictures and live music entertainment that will give everyone a taste of New Orleans.

Joining Brown at the top of the 2010 awardees list is past AAPG president **Patrick J.F. Gratton**, independent geologist and president of Patrick J.F. Gratton Inc. of Dallas, who is this year's recipient of the Michel T. Halbouty Outstanding Leadership Award.

Also during the ceremony the inaugural John W. Shelton Search and Discovery Award will be presented, to **Paul M. "Mitch" Harris**.

And **David Pyles**, technical research manager at the Chevron Center of Research Excellence in Golden, Colo., will become only the second person in AAPG history to receive two awards in the same year for papers that he prepared for AAPG publications.

AAPG awards, approved by the Executive Committee, are presented annually to recognize individuals for service to the profession, the science, the Association and the public.

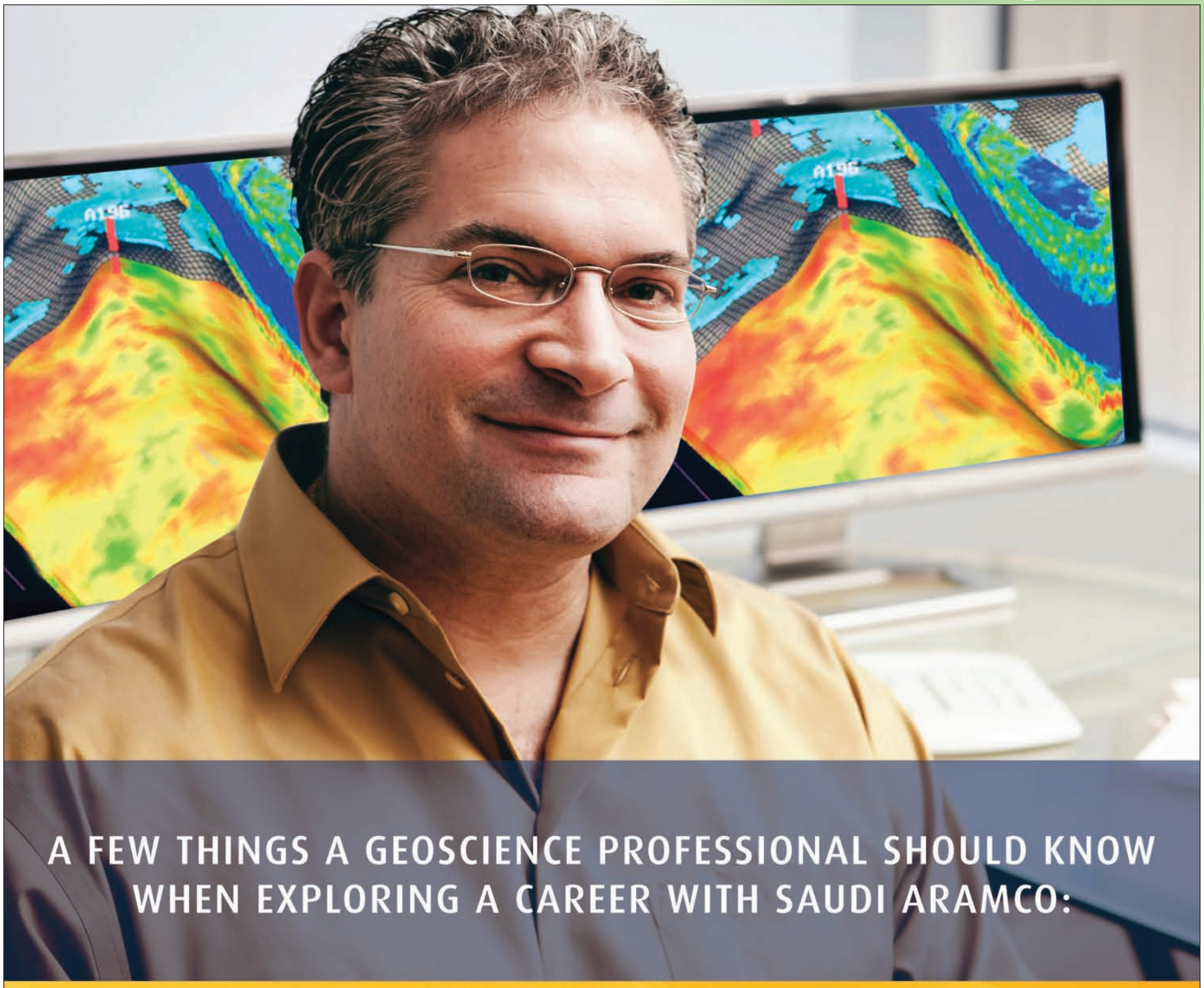
Brown, professor emeritus at the Bureau of Economic Geology, began his career at the BEG in 1957, having faculty appointment at the University of Texas at Austin in 1966-89. He also taught at Baylor University in 1960-69 and worked as a full-time consultant in 1989-98.

Brown has served as a mentor to scientists and geoscientists at the BEG as well as leading industry companies all over the world and has contributed to many publications, including AAPG Studies in Geology 41 – an atlas of exploration for Cretaceous lowstand traps.

He is a past recipient of the AAPG Pioneer Award, and has served as AAPG BULLETIN associate editor, AAPG Distinguished Lecturer – both domestic and international – and the leader of short courses and many field trips.

Gratton is the fourth recipient of the Halbouty Outstanding Leadership Award,

See **Award**, page 22



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Awards
from page 20

given in recognition of outstanding and exceptional leadership in the petroleum geosciences.

Interviews with both Brown and Gratton can be found on pages 24 and 36, respectively. Biographies and citations of all award winners will be included in a future BULLETIN.

Those award winners approved by the Executive Committee and who will be honored along with Brown and Gratton in New Orleans are:


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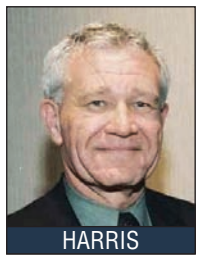

HARRIS


TILLEY


HEMMESCH


HARRIS


ZALÁN

Honorary Member Award

Presented to members who have distinguished themselves by their accomplishments and through their service to the profession of petroleum geology and to AAPG.

❒ **Adebayo O. Akinpelu**, Chevron, San Ramon, Calif.

❒ **John R. Hogg**, MGM Energy, Calgary, Canada.

❒ **Pinar O. Yilmaz**, ExxonMobil, Houston.

Outstanding Explorer Award

Presented to members in recognition of distinguished and outstanding achievement in exploration for petroleum or mineral resources, with an intended emphasis on recent discovery – in this case, the Amoruso Field in east Texas.

❒ **John J. Amoruso**, Legends Exploration, Houston.

❒ **J. Denny Bartell**, Legends Exploration, Houston.

❒ **Larry Bartell**, Legends Exploration, Houston.

Robert R. Berg for Outstanding Research Award

❒ **Martin P.A. Jackson**, Bureau of Economic Geology, Austin, Texas.

Distinguished Service Award

Presented for those who have distinguished themselves in singular and beneficial long-term service to AAPG.

❒ **Martin M. Cassidy**, consultant, Cypress, Texas.

❒ **Rebecca L. Dodge**, Midwestern State University, Wichita Falls, Texas.

❒ **Bob A. Hardage**, Bureau of Economic Geology, Austin, Texas.

❒ **Dwight "Clint" Moore**, ION Geophysical, Spring, Texas.

❒ **Terence G. O'Hare**, Emerald Energy, Dallas.

❒ **Craig W. Reynolds**, Cobra Oil and Gas, Wichita Falls, Texas.

❒ **John W. Robinson**, North Ranch Resources, Littleton, Colo.

Grover E. Murray Distinguished Educator Award

Presented for distinguished and outstanding contributions to geological education, both at the university level and toward education of the general public.

❒ **Wayne M. Ahr**, Texas A&M University, College Station, Texas.

❒ **Eric A. Erslev**, Colorado State University, Fort Collins, Colo.

❒ **Murray K. Gingras**, University of Alberta, Edmonton, Canada.

Special Award

Presented to individuals and organizations whose area of work may not qualify for one of the existing awards, but is worthy of Association recognition.

❒ **Robert W. Allen**, independent, Ardmore, Okla.

❒ **George P. Mitchell**, founder and former chairman and CEO of the Mitchell Energy and Development Corp., The Woodlands, Texas.

Public Service Award

Presented to recognize contributions of AAPG members to public affairs – and intended to encourage such activities.

❒ **Thomas C. Bergeon**, Century Exploration, Metairie, La.

❒ **Ahmed N. El Barkooky**, Shell Egypt and adjunct professor at Cairo University, Egypt.

❒ **William B. Harrison III**, Western Michigan University, Kalamazoo, Mich.

❒ **Tako Koning**, Chevron Angola, Bellaire, Texas.

Pioneer Award

Presented to long-standing members who have contributed to the Association and who have made meaningful contributions to the science of geology.

❒ **Thomas D. Barrow**, Houston.

Continued on next page

Continued from previous page

Wallace E. Pratt Memorial Award
J.C. "Cam" Sproule Memorial Award

This year, for only the second time in AAPG history, the awards go to the same person. The Pratt award is presented to honor the author(s) of the best AAPG BULLETIN article published each calendar year; the Sproule award honors younger author(s) of papers applicable to petroleum geology.

❒ **David R. Pyles,** for "Multiscale Stratigraphic Analysis of a Structurally Confined Submarine Fan: Carboniferous Ross Sandstone, Ireland," which appeared in the May 2008 BULLETIN (volume 92, number 5). Pyles is with the Chevron Center of Research Excellence, Colorado School of Mines, Golden, Colo.

Pyles also won the 2009 Sproule award, giving him three technical AAPG awards in a one-year period.

Robert H. Dott Sr. Memorial Award

Presented to honor and reward the author/editor of the best special publication dealing with geology published by the Association.

❒ **Stephen P. Cumella**, **Keith W. Shanley** and **Wayne K. Camp** for editing "Understanding, Exploring and Developing Tight-Gas Sands: 2005 Vail Hedberg Conference." Cumella is with Bill Barrett Corp., Evergreen, Colo., Shanley is a consultant in Littleton, Colo., and Camp is with Anadarko Petroleum, Houston.

John W. Shelton
Search and Discovery Award

Presented in recognition of the best contribution to the "Search and Discovery" Web site.

❒ **Paul M. "Mitch" Harris**, senior research consultant with Chevron Energy Technology Co., San Ramon, Calif. Harris is being honored for the excellence of his total contribution of 53 papers, a number with co-authors, to the site. He previously won the Wallace E. Pratt Memorial Award and twice won the Robert H. Dott Memorial Award.

George C. Matson Award

Presented to honor and reward the best oral presentation at the AAPG Annual Convention in Denver.

❒ **Barbara Tilley**, with the University of Alberta, Edmonton, Canada, for the paper "Isotopic Evidence for Fault-Induced Gas Mixing in Sweet Spots of the Sukunka Gas Field, Western Canadian Foothills." Her co-authors were **Pradeep Bhatnagar**, **Scott McLellan**, **Bob Quartero** and **Byron Veilleux**, all with Talisman Energy, Calgary; and **Karlis Muehlenbachs**, with the University of Alberta.

Jules Braunstein Memorial Award

Presented to honor and reward the best poster presentation at the AAPG Annual Convention in Denver.

❒ **Nikki Hemmesch** and **Nicholas Harris**, for the poster "Sequence Stratigraphic Architecture for the Late Devonian Woodford Shale, Southern Permian Basin, West Texas." Hemmesch will be honored posthumously in New Orleans (see August EXPLORER). she was a graduate student and Harris her professor and adviser at the Colorado School of Mines, Golden, Colo.

Gabriel Dengo Memorial Award

Presented to honor and reward the best oral presentation at the AAPG International Conference and Exhibition in Rio de Janeiro, Brazil.

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

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

Ziad Beydoun Memorial Award

Presented to honor and reward the best poster presentation at the AAPG International Conference and Exhibition in Rio de Janeiro, Brazil.

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

All authors are with Getech Group, Leeds, England.

House of Delegates
Honorary Membership

❒ **Martin D. Hewitt**, Nexen Petroleum USA, Plano, Texas.

House of Delegates
Distinguished Service

❒ **Donald D. Clarke**, consultant, Lakewood, Calif.

❒ **Robert G. Lindblom**, consultant, Menlo Park, Calif.

'Put da fun before da mental'

Powers Medalist a 'Practical Researcher'

By DAVID BROWN, EXPLORER Correspondent

Only one AAPG member went on record to question the choice of L. Frank Brown Jr. as recipient of the 2010 Sidney Powers Memorial Award, the Association's most distinguished honor.

That was L. Frank Brown Jr.

"I'm sort of surprised that I would be singled out in petroleum geology," he admitted.

There's no doubt, Brown would be more comfortable with the title of Practical Geologist or even General Stratigrapher.

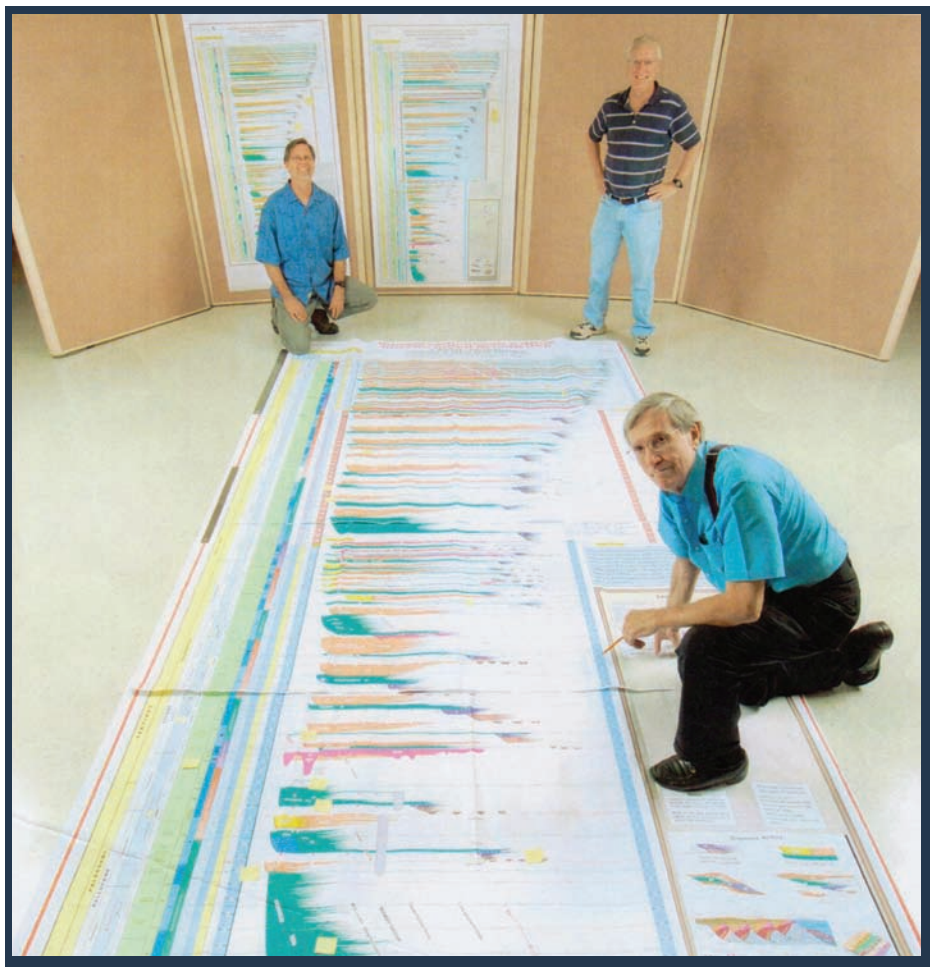
There's also no doubt that his work helped change the way petroleum geology and exploration is done around the world.

Brown is an emeritus professor at the University of Texas at Austin and a senior research fellow at the Bureau of Economic Geology (BEG). He's known as a key developer of concepts in depositional systems, seismic stratigraphy and sequence stratigraphy.

William L. Fisher, a past Sidney Powers medalist and former dean of the Jackson School of Geosciences at UT-Austin and a longtime collaborator with Brown as director of BEG, called him one of the world's top stratigraphers.

Brown's honors include the Monroe Cheney Science Award from AAPG's Southwest Section, the Doris Malkin Curtis Medal from the Gulf Coast Section SEPM and in 2008 a Special Award from the Geological Society of South Africa.

He developed today's fundamental approach to describing depositional packages and introduced advanced stratigraphic concepts around the world – in large part through AAPG lectures, short courses and publications.



L. Frank Brown Jr. (kneeling), a key developer of concepts in depositional systems, seismic stratigraphy and sequence stratigraphy, is this year's AAPG Sidney Powers award winner.

And along the way he helped upend some dubious thinking in geology.

For example, he described BEG studies showing the prevailing geological theory about the mature Woodbine Field area in Texas was off the mark. As a result, waterflooding efforts in the field weren't draining the reservoir efficiently.

"Those fellows over in East Texas were just bumfuzzled because their ideas turned out to be incorrect," Brown said.

That work led to a string of discoveries by operators, including AAPG Honorary Member and Sidney Powers medal awardee Bob Gunn's Gunn Oil Company in Wichita Falls, Texas, he said.

"They've made zillions of discoveries and they're still making them," Brown noted. "They've totally flummoxed people over there, who couldn't figure out how they were finding these things."

Bed Time in Brazil

Changes in geological thinking during Brown's 55-year career have amounted to nothing less than a revolution, in his view.

"I sort of bridged the gap from the old timers before World War II – when stratigraphy was considered boring and

See **Brown**, page 26

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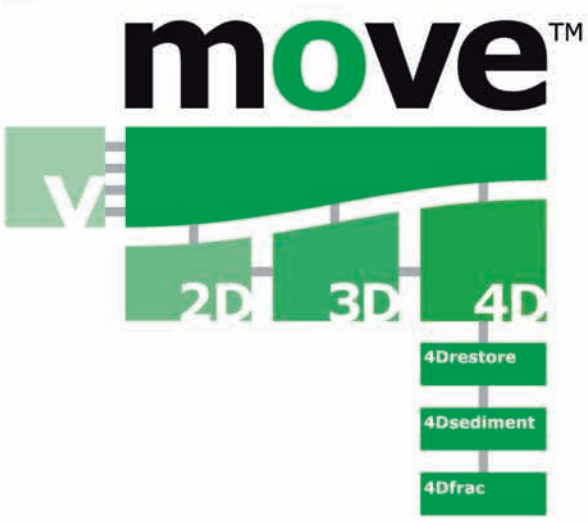

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Brown
from page 24

involved a lot of memorization – through a revolution where almost all the majors established research labs," Brown said.

"Everything that happened from that period through the 1950s up to today was very controversial at the time," he added. "The old timers didn't want to change their way of thinking. For the most part, people now have accepted what happened."

Out of all his international geological consulting work, including visits to 25 countries, Brown is probably best known for his efforts in Brazil.

"Bill Fisher and I were working with Petrobras for about 10 years," Brown recalled. "That got us into collaboration with Peter Vail and with Bob Mitchum and those guys over at Exxon.

"In that period, I'd work a basin and he'd work a basin. We insisted that they send two or three people up to Austin every year – not to go to school, but to rent space at the university and to work on real problems in these basins," he said.

Fisher described one experience with Brown when the two were consulting with Petrobras. The company had arranged accommodations at a good hotel in Rio de Janeiro, in the Copacabana area.

They decided to travel to Brazil's Bahia region for fieldwork and returned to Rio one night at about 1 a.m. The hotel could provide only one room, with a double bed – and not enough space for all their luggage.

Fisher, Brown and a suitcase shared the bed that night. The next day, Petrobras executives asked about their hotel stay. They said their quarters were marginal, at best.

When the pair returned that evening, "they had the entire suite on the top of that hotel reserved for us, with an open bar," Fisher recalled. "Our colleagues would remark how well Petrobras was treating us.

"Frank said, 'All you have to do is find them a little oil, and look what you get,'" he said.

Almost everyone knows the ultimate ending to this story. The work done by Brown and Fisher helped Petrobras find much more than "a little oil."

The Practical Solution

Unlike some geologists, Brown went off to college with an established career path in mind.

"I had a grandfather who was a medical doctor, and everybody in the family said, 'You've got to be a doctor,'" Brown recounted. "So, I spent four years in pre-medical at Baylor."

As it turned out, that was all the medical training he really wanted. He looked around the sciences and asked how he could get a degree in geology.

"They said, 'You'd have to spend one solid year studying nothing but geology.' So I did that," he said.

After earning his first degree cum laude at Baylor, he attended the University of Wisconsin and received his doctorate in geology in 1955.

As a graduate student, Brown realized that he didn't want to be the kind of scientist who spends all his time in a laboratory. Petroleum geology seemed like a practical choice for a career.

"It was the fact that it was good science and there were a lot of practical aspects to it, which I liked," he said. "I'd had just about enough of lab science."

Moreover, Brown had grown up around the oilfields near Drumright, Okla. He'd worked summers in the industry in "construction, roustabout work and a little roughnecking." His father was an employee in the production department of Gulf Oil, Brown said, "and I thought, 'Well, I guess it's a way to make a living.'"

With his geology degrees in hand, Brown launched off for a career in petroleum geology in the world's most exciting and exotic places.

And landed in Amarillo.

Texas. The Panhandle. For two years.

"I never did a lot of well site work," he recalled. "Never sat a well. When I worked for Standard of Texas in Amarillo, they weren't drilling a lot of wells."

"Operators out in West Texas wanted people to keep working the area and to come up with some new ideas," he said. "Some of the older guys out there thought surely there must be different types of targets than they'd been drilling."

At that point, he was offered a position as a researcher with the BEG in Austin, to continue the Bureau's studies in the West Texas Basin.

A Global Classroom

Brown returned to Baylor to teach geology for six years, then came back to the BEG and began a decades-long, fruitful collaboration with Fisher and other scientists.

"Frank introduced the concept of system tracks – we called them depositional system tracks in those days. That has become the fundamental way of describing depositional packages," Fisher said.

As a 50-year colleague, Fisher admires Brown's "exceptionally keen perception. That's why he was early on one of the leaders in seismic stratigraphy. He could see things in the data that nobody else could see.

"At the same time, he's capable of listening to others," Fisher added, "and we've had some good conversations on a number of issues."

Brown also brought a willingness to keep learning to his research – and a healthy skepticism about what he'd been told. As an example, he cited the initial opposition to plate tectonics theory.

"When I was in school, I was told it was totally impossible to move a continent around the world," he said.

After his university experience, Brown said he quickly realized that he – and the industry – had "huge gaps in knowledge." He's managed to fill in a number of those gaps with his research and his travels.

"I've learned a lot I didn't know before by seeing basins all over the world," he said.

The word Brown uses most often to describe his work is "practical," and he considers himself more of an intuitive, big-picture researcher than an analyst.

"I'm a right-brainer, not a left-brainer like a lot of these scientists are," he explained. "I'm more of an integrator and a geology historian."

It's been said that the key to gaining fundamental knowledge is to "put da fun before da mental." Brown has followed that advice in his highly successful research and career.

"In Wisconsin, I had great fun as a grad student," Brown said, "and I've had fun ever since."

Shale a game changer

Uncertainty Clouds Gas Resource Estimates

By DAVID BROWN, EXPLORER Correspondent

Thanks to shale gas, estimates of the available U.S. natural gas resource have ballooned in recent years.

How reliable are those estimates?

No one knows for sure – and the projections carry a real risk of inaccuracy, said AAPG member Richard Nehring of Nehring Associates Inc. in Colorado Springs, Colo.

"It's mainly that there are large degrees of uncertainty," Nehring said. "I see people making plans about how to use this (estimated) resource, which is like planning what I'm going to do when I win the lottery."

Nehring will discuss those estimates and their risks at the upcoming AAPG Annual Convention and Exhibition in New Orleans, in his paper "Just How Enormous Is the 'Enormous' U.S. Natural Gas Resource? Implications for Future Supply and U.S. Energy Policy."

He noted the increase in gas resource projections resulted directly from the emergence of shale gas plays. Conventional U.S. gas production has been declining for some time. Transitional sources also are in decline.

Tight gas made up most of the shortfall after the peak in conventional gas production, but it probably won't expand supply in the future, Nehring said.

"It will still be a major contributor, but we don't have many of the 50 Tcf-plus plays like we do in shale gas. Tight sands gas will provide a base for the next two decades, but it's more of a sustainer than a game changer," he explained. "Shale gas is the game changer."

> "We can tell from experience that there is some sort of cost-curve on this resource. That's an unknown right now."

To have an enormous gas resource, "you have to have enormous or very large plays," Nehring said. He sees the possibility for a number of 10-30 Tcf plays in domestic coalbed methane and tight gas.

"When you talk about the Haynesville and the Marcellus, shale gas plays with over 100 Tcf of potential each, it's a different ballpark," he noted.

Yet, "there are several risks in evaluating these shale plays," Nehring said.

First, shale gas production is a recent phenomenon – and in some ways, an emerging practice.

"A large degree of the debate is how much continuing production you get out of those wells. What people know is how much you get the first two years," he observed.

In some play areas, projections of ultimate recovery might vary from four-five Bcf per well to eight-10 Bcf per well. That makes a significant difference in the amount of resource that will prove to be recoverable, he said.

The high-side estimate of gas resource in the Marcellus shale is five times the low-side estimate, Nehring noted. Typically, U.S. gas resource numbers are stated as a collection of mean estimates, ignoring the wide variation between high cases and low cases.

"As a result, people tend to ignore the uncertainties," he said.

A second problem in making long-term resource estimates is uncertainty about the effect of economics on shale gas production.

"We can tell from experience that there is some sort of cost-curve on this resource," Nehring said. "That's an unknown right now. We don't know a lot and we aren't learning a lot about the higher-cost resource, because people are ignoring it.

"The cost-curve is a dynamic concept, not a static concept," he added.

Economics' Dynamic

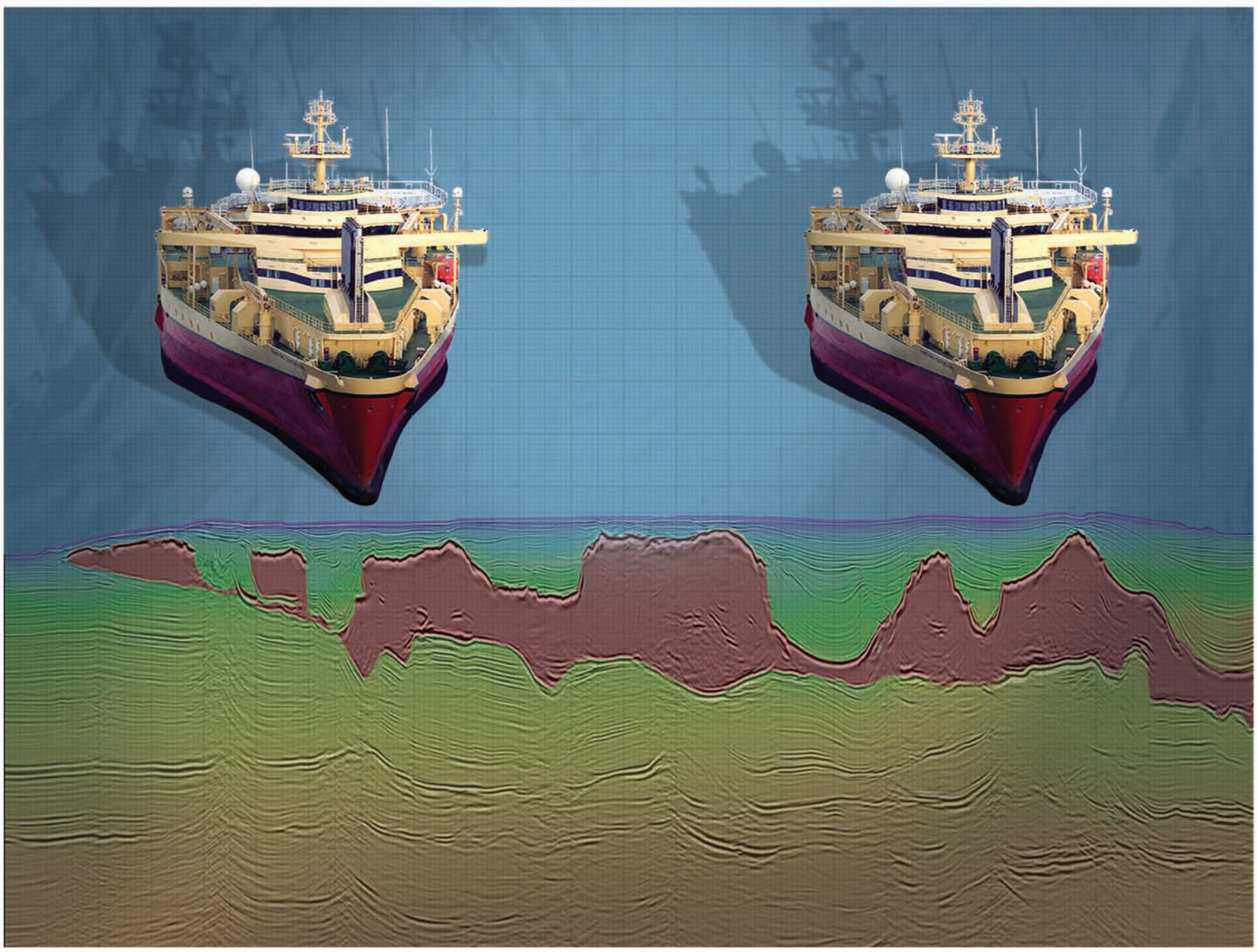
Changing economics in the decades ahead will have an effect on shale gas production, but it's very difficult to know

See **Nehring**, page 30

Richard Nehring will give his paper, "Just How Enormous Is the 'Enormous' U.S. Natural Gas Resource? Implications for Future Supply and U.S. Energy Policy," at 4:45 p.m. Tuesday, April 13, at the AAPG Annual Convention and Exhibition in New Orleans.

Nehring's paper is part of a four-paper session on "Future of U.S. Energy." Other papers in the session are:

- "A Pathway to Clean Energy," by Dag Nummedal, Colorado Energy Research Institute, Golden, Colo.
- "The New Strategic Petroleum Reserve – Shale Oil, an Opportunity to Increase Energy and Economic Security," by Stephen Sewalk, University of Colorado, Boulder, Colo.
- Fossil Fuels, Energy Policy and Common Sense," by W. Hoxie Smith, Petroleum Professional Development Center, Midland College, Midland, Texas.



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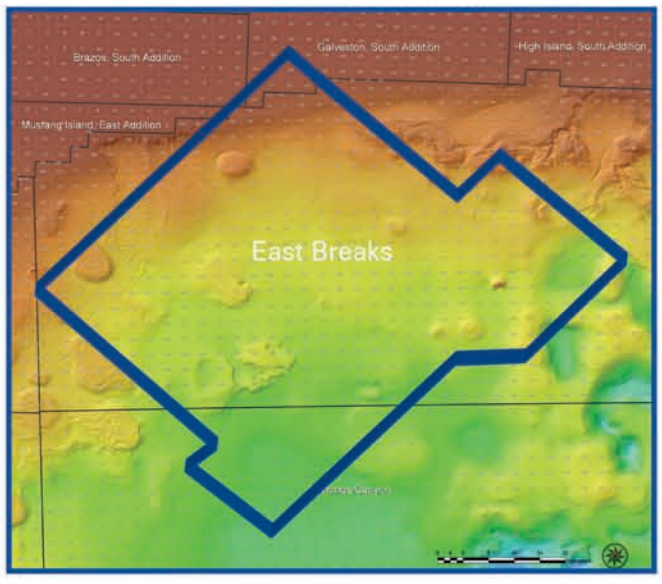

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Divisions Set Luncheons in New Orleans

AAPG's three Divisions all will have special luncheons on Tuesday, April 13, during the AAPG Annual Convention and Exhibition in New Orleans – two of them meeting jointly.

The Division luncheons join the All-Convention (see page 12) and PROWESS events (see page 60) that also will be offered during the meeting.

Specific information on all can be found online at www.aapg.org/neworleans/Luncheons.cfm.

All Division luncheons start at 11:30 a.m., and will be held in the La Nouvelle Orleans Ballroom of the Ernest N. Morial Convention Center. They are:

▸ The EMD-DEG luncheon will feature **John A. Grant III**, geologist for the Center for Earth and Planetary Studies at the Smithsonian's National Air and Space Museum.

Grant, also a member of the Science Team for the Mars Exploration Rovers, will talk on "Exploring Mars From the Ground Up: Results from the Mars Exploration Rovers and the HiRISE Camera on the Mars Reconnaissance Orbiter.

▸ The DPA luncheon will feature six panelists who will discuss issues affecting DPA, AAPG, the profession and the general public. The panelists are:

✓ **David Curtiss**, director of AAPG's Geoscience and Energy Office in Washington, D.C.

✓ **John Dolson**, director of DSP Geosciences and Associates, Coconut Grove, Fla., and a former vice president of AAPG.

✓ **Lynn N. Hughes**, a federal judge in Houston and AAPG's current Distinguished Lecturer on Ethics.

✓ **Peter R. Rose**, senior associate with Rose & Associates in Austin, Texas, and a former president of AAPG.

✓ **M. Ray Thomasson**, founder and owner of Thomasson Partner Associates, Denver, and a former president of AAPG.

✓ **Scott Tinker**, director of the Bureau of Economic Geology and the state geologist of Texas, Austin, and the immediate past president of AAPG.

Nehring
from page 28

how production will respond to price fluctuations. Nehring thinks we are unlikely to know more about the high-cost resource in the near future.

"We're probably going to be looking at the lower-cost end for the next decade, at least," he said.

A number of shale gas plays exist in the Rocky Mountain region, but their economics are not well understood, and "the Rockies are the end of natural gas supply chain," Nehring noted.

Alaska hasn't even made it into the gas supply-chain picture, pending completion of an Alaskan gas pipeline. The U.S. resource estimates do include some Alaskan gas, but it's impossible to tell if those projections are optimistic or pessimistic.

Nehring predicted a transportation cost of $3-$4/Mcf for Alaska gas, "and it's an expensive place in which to operate," he added. A low-price environment will do little to stimulate development of Alaskan gas.

Another consideration in judging today's gas resource estimates might be the dismal track record of past estimates. The United States has seen estimates ranging from an abundant resource to imminent production shortages.

"I could pull out study after study saying we were going to need huge amounts of LNG imports between 2010 and 2020," Nehring said.

Of course, companies that committed a large number of dollars and man-hours to planning and building domestic LNG terminals are now asking, "Where did all this gas come from?"

Nehring also has described uncertainties in the world's oil resource estimate. He chaired AAPG's Hedberg Research Conference on Understanding World Oil Resources.

Beyond the unknowns in total resource projections, Nehring predicted a plateau in world oil production by 2020-40. That peak would come primarily because consumption is devouring the world oil resource at such a rapid rate.

In evaluating gas resource estimates, Nehring is not trying to devise a more likely range of numbers. He wants to identify the risks in the current resource assessments.

"It's not so much making firm statements about how much resource is out there," he said, "but considerations about how to think about that resource."

Tough Planning

The stakes are high. Today, the United States is considering shifting a meaningful part of its electrical generation and even public transportation activities to natural gas fuel.

Companies are making plans and investment decisions based on estimates of resource availability. Incentives have been proposed to increase natural gas usage. Gas proponents believe new supplies can reduce U.S. oil imports.

"It's hard to make plans for the long term," Nehring said. "If you want to expand the market, you want to make sure you can provide 30 years, at least, and more like 40 to 50 years of supply for that market."

Shale gas will be an important contributor to future supply, but the size of that resource is open to debate and revision. And adding together a number of uncertain estimates doesn't help, Nehring noted.

"There is no methodologically sound way of summing the estimates for a large number of resource plays," he said.

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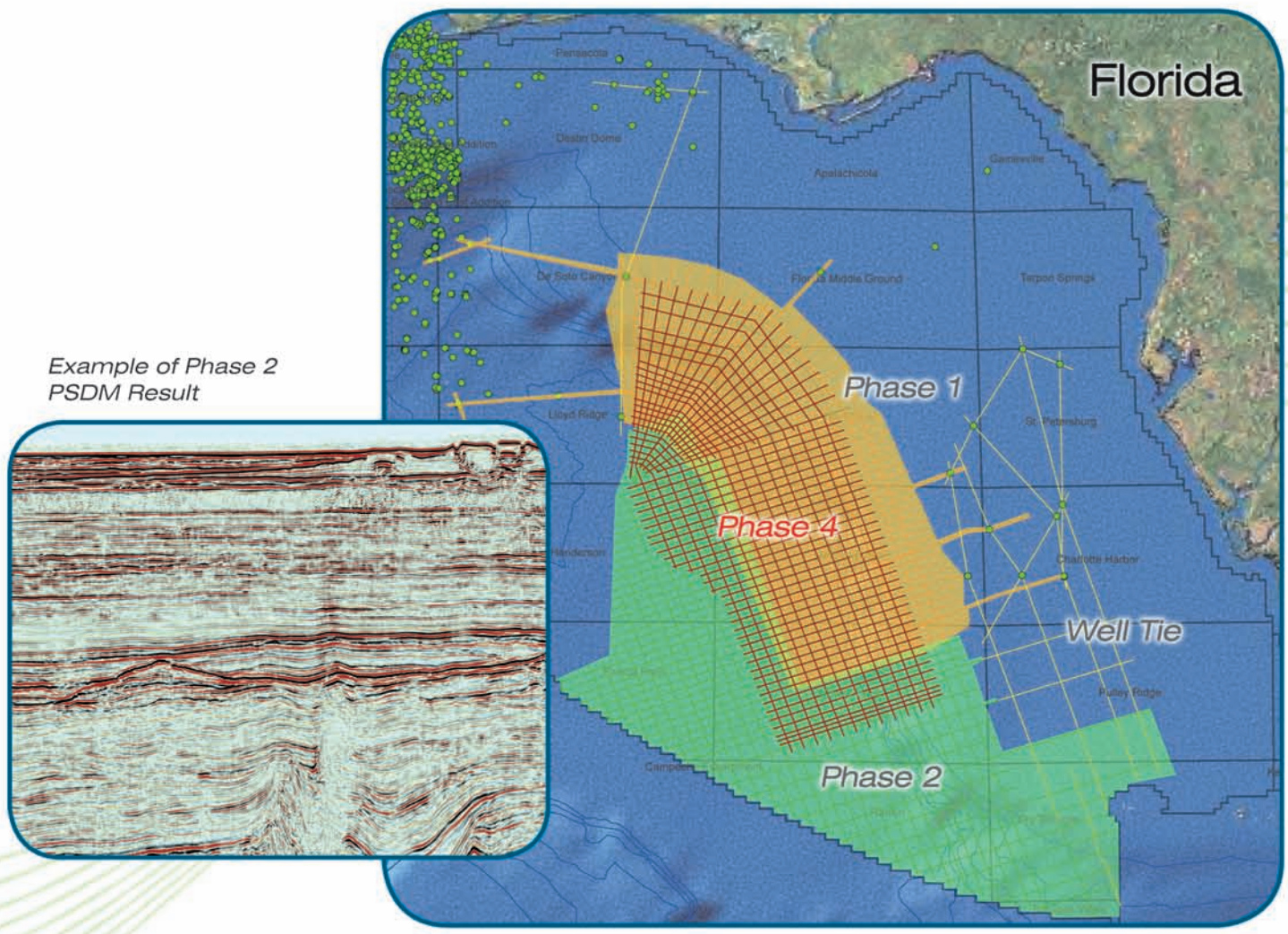

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Survey map showing new Phase 4 infill

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Session honors bio-strat legend Picou

Micro-Taxonomy Puts the Puzzle Pieces Together

By BARRY FRIEDMAN, EXPLORER Correspondent

"I have always thought of taxonomy as putting together the pieces of a puzzle."

That's the perspective of AAPG member Richard Denne, a geologist with Marathon Oil in The Woodlands, Texas.

And for him, biostratigraphy is one of the more challenging and frustrating pieces of the puzzle – similar, one imagines, to trying to find Tiger Stadium in a 1,000-piece puzzle that when finished would feature Baton Rouge, La.

It's not just a random reference. But more about that later.

The frustration, Denne adds, was in never having enough pieces to complete his task, especially in his early days when he was a consultant.

"Although I enjoyed the thrill of identifying rare species or finding new forms, I was continually frustrated at only being given a few pieces of the puzzle," he said.

That changed, though, when he began working for Marathon as advanced senior geologist, biostratigraphy adviser upstream technology-worldwide geoscience – and was given access to many more of them.

It is not, though, just about having more to work with; it's also the company he keeps – literally, figuratively.


PICOU

"I am able to work with a team," he said, "and not in isolation."

And what Denne has learned, both at Marathon and even before when he was a consultant, is the focus of his paper on taxonomy at this year's AAPG annual convention in New Orleans: Microfossil Taxonomy in the 21st century.

One figure who will loom large at the forum – in fact, someone who looms large in the entire discipline – is AAPG Honorary Member Ed Picou, a New Orleans-based consultant and proud alum of Louisiana State University, based in Baton Rouge.

Denne says that few in the profession mean as much.

"I chose this topic in part because I knew that it was one that Ed considered of major significance," he said, "as evidenced by his role in the production of the GCSSEPM Gulf of Mexico Basin Biostratigraphic Index Microfossils volumes."

Denne says the focus of his part of the session will concentrate on:

- The need for a better understanding of how species are defined – specifically with detailed measurements – and how they are inter-related.
- How this knowledge can be used to further refine our biostratigraphic models and increase consistency between paleontologists.
- How computer data and analysis – no matter how sophisticated – can overcome inaccurate misidentification of species.
- How the biostratigraphy community needs to do a better job of communicating species concepts to future generations, especially as local Gulf Coast experts retire.

The above may be the content of the discussion; Picou is clearly the subtext.

"I first met Ed Picou over 20 years ago as a Ph.D candidate at LSU," he said. "Over the last couple of years I have had numerous discussions with Ed on making a change in my career path as I investigated several options. This eventually led to my current position as biostratigraphy adviser at Marathon Oil."

Picou once compared paleontology to that of a suspense novel and talked about the excitement of not knowing what would come next.

Denne, like so many others, says Picou not only stoked his excitement in the profession, but also did something else equally as important.

"Although I began my career as a competitor, it has always been clear to me that Ed's integrity was unquestionable," he says, perhaps thinking about all those pieces to the puzzle, "and that I could come to him for advice."

Richard Denne's paper, "Microfossil Taxonomy in the 21st Century," is part of a nine-paper session honoring AAPG Honorary Member Ed Picou's career that will be presented in New Orleans during the AAPG Annual Convention.

"Paleontology in the 21st Century: A Symposium Dedicated to Ed Picou" will be held Wednesday morning, April 14.

Denne's paper will be presented at 8:45 a.m. Other papers in the session include:

- "From Greenhouse to Icehouse: To There and Back Again – Results from Arctic Ocean Drilling."
- "Triassic Foraminifers: New Data on Dispersal, Paleogeography and Stratigraphic Global Correlations."
- "Evidence of Environmental Change from Foraminiferal and Sedimentological Correlation in an Incised Valley: Baffin Bay, Texas."
- "Integration of Paleontology Key to Building Impact."

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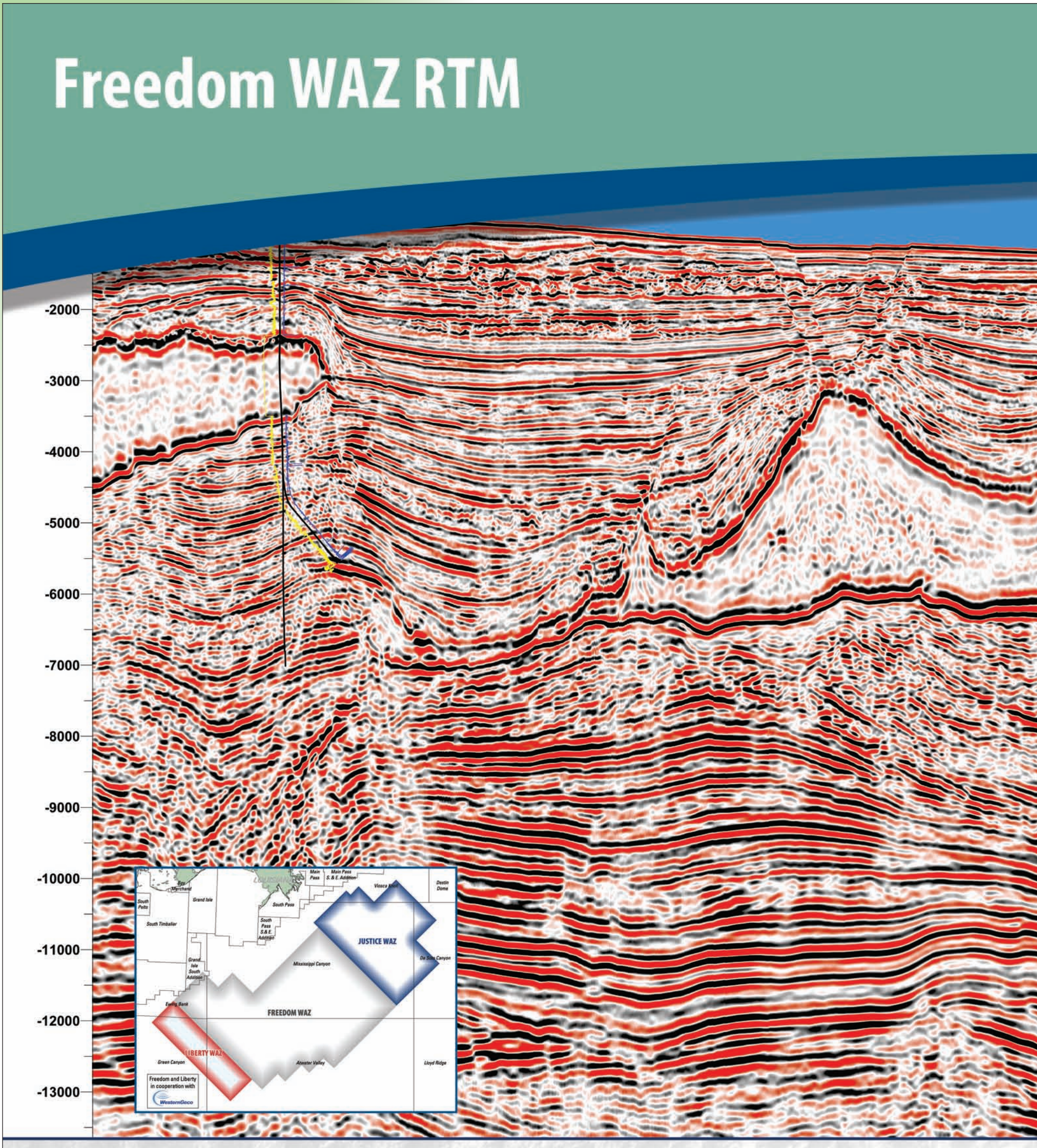

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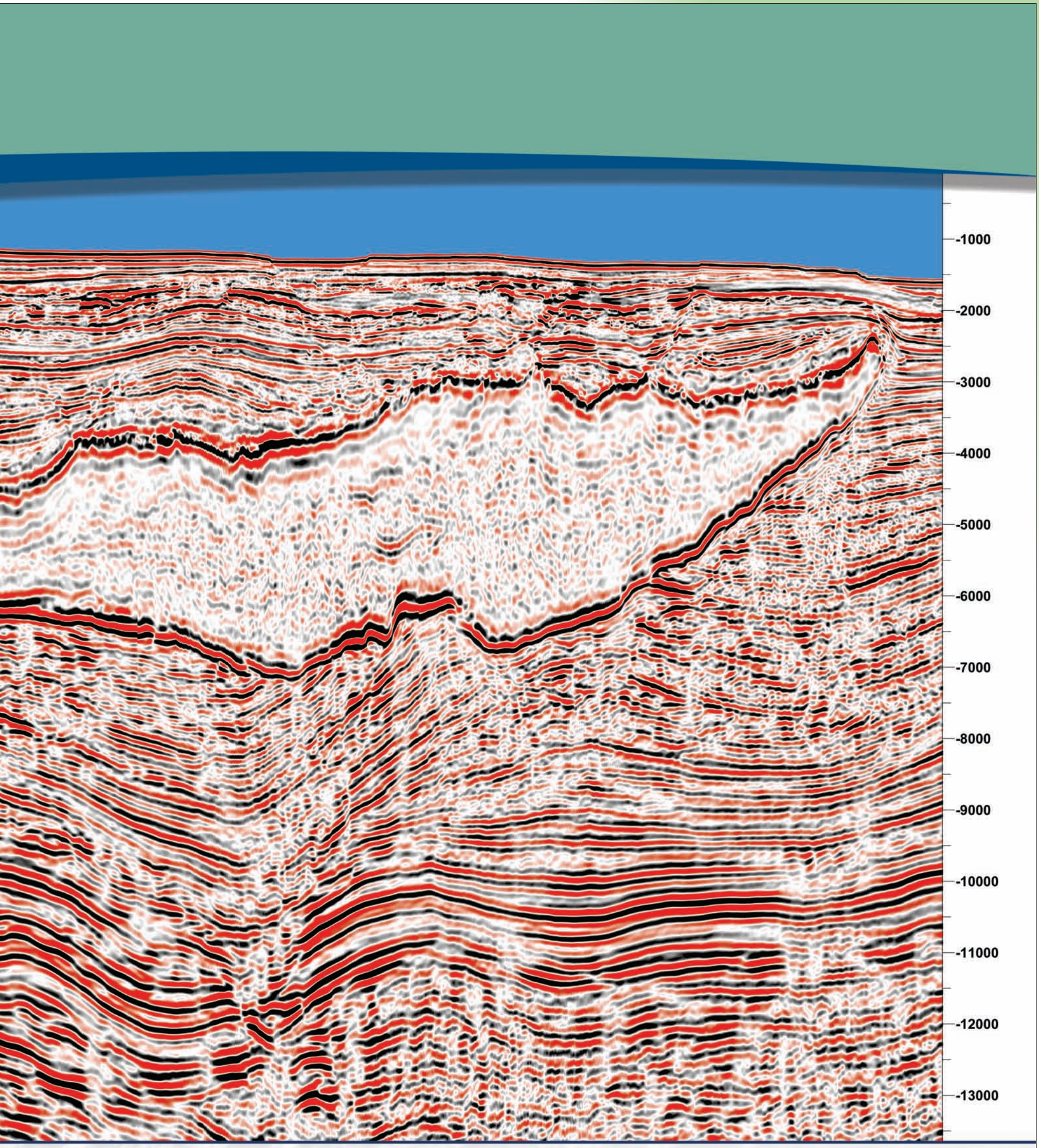


Gratton: A Leader of Volunteers – With Respect

By LOUISE S. DURHAM, EXPLORER Correspondent

It can be exhausting just to review a partial list of Patrick J.F. Gratton's AAPG-related activities over the years.

After all, this energetic past AAPG president (2004-05) has served on a total of 20 committees during his 49 years of membership in the Association and has been appointed chair of seven of these entities. Once GEO-DC was formed, he served on the Board of Governors, acting as chair in 2007-09.

Given this background, it's only fitting that this dedicated geologist and nose-to-the-grindstone professional organizations volunteer worker will receive the Michel T. Halbouty Outstanding Leadership Award in New Orleans at this year's annual confab.

There are volunteers, and there are volunteers.

Gratton, an AAPG Honorary Member and Foundation Trustee Associate, clearly is one of the committed ones who takes these gigs seriously – and recognizes that leadership qualities are essential tools to encourage volunteer groups to achieve goals.

He noted he had some good role models.

"A person who has influenced me a lot has been (former AAPG president) Bob Gunn," Gratton said, "and the person who had a critical influence on me in college at the University of New Mexico was Sherman Wengerd who became president of AAPG in the 1950s.

"Wengerd taught the first geology class I was in and had a very substantial and continuing influence while I was in college," he noted. "As editor at AAPG and then president, he had a lot of influence on me considering more activities in AAPG."


GRATTON

> "There are few classes ... with the theme of leadership. The educational institutions need to have that as part of their makeup."

Semper Paratus

Gratton emphasized he was fortunate to attend a leadership class at the Coast Guard Academy, where the instructor made it clear what kind of leader is the best.

"He said there are leaders who are effective who lead through fear, and those who lead through love," Gratton commented. "But he noted the best form of leadership is one who leads by developing respect from followers – and I agree with that.

"It's very important to be able to do things for people that cause them to develop respect for you and your style," Gratton added.

He pointed out that the military is based on command and control and absolute obedience in contrast to volunteer organizations, which have a far more different leadership requirement:

- Must persuade people to do something for no reimbursement or compensation. Persuasion presents some of the greatest difficulties in volunteer organizations, but it's easier when people respect you.
- Communication is vital to get your ideas across to others.
- Vision is critical for a leader, as followers will be willing to help out because they see their leaders can help them get where they want to go.

Gratton commented that there's a large percentage of any entity that may not have the talent for leadership, but the participants know what they want done and will help someone else do it.

"Many people don't have the time, energy or inclination to do something," he said, "but they don't mind someone else being the activist."

Unfortunately, there's a dearth of leadership training programs for younger people coming into the business world.

"There are few classes in high school or college that work with the theme of leadership," Gratton noted. "The educational institutions need to have that as part of their makeup."

He emphasized AAPG has made the effort to focus on people who need to be graduated to more responsible roles as leaders. He noted also that some of the younger members who take roles as student chapter officers in universities or colleges are showing their interest in leadership by assuming these responsibilities.

A 'Useful Time'

He was president of SIPES in 1977 and 10 years later was president of DPA during the struggle about whether to support registration of geologists. He succeeded in getting other professional geoscience associations to cooperate in generating a "model bill" to be used by state legislatures to establish state licensing of geoscientists, while exempting resource geoscientists working in the private sector.

Gratton then served as chairman of the AAPG House of Delegates prior to becoming president of the Association.

A partial list of his honors and awards that have come his way because of his leadership efforts would include:

- An AAPG Distinguished Service Award, in 1998.
- Three certificates of merit, in 2003 (chair, Visiting Geologists Committee), 2004 (chair, Budget Review and Finance Ad Hoc Committee) and 2006 (chair, Graduated Dues Ad Hoc Committee).
- An Honorary Member of the AAPG House of Delegates.
- A 15-year Certificate of Service award from the HoD.
- Life Membership from the DPA.

"All those things built on each other," he said, "and good relationships developed with a lot of key players in AAPG – I think it's been a useful time with the Association.

"It's been a helluva lot of work," he added, chuckling.

Drilling deep in the Deep South

Louisiana's Story Is More Than Shale

By LOUISE S. DURHAM, EXPLORER Correspondent

Oil patch activity in north Louisiana with its many aging oil and gas fields has long been overshadowed by E&P action in the southern part of the state.

After all, Cajun country is a region where often-big deep finds in the many hydrocarbon-rich deposits, particularly the Miocene, attract considerable attention – and investment capital.

Leave it to one of the sexy shale plays to shake up the status quo.

Once the attention-grabbing Haynesville shale gas play came into being in the northwestern part of the state, old was new again and the area became a kind of beacon to oil patch players who came running, seemingly toting bags of greenbacks.

Suddenly, south Louisiana appeared to be so yesterday.

Nonsense, according to many in-the-know folks who continue to view this region as a land of opportunity, particularly in the deeper horizons.

"People drilling in the Haynesville are talking about $6 million wells, and you can get a pretty good start in south Louisiana for that kind of money," said AAPG member Don Frye, geologist turned geophysicist at Magnum Producing in Houston.

"South Louisiana has produced billions of barrels of oil and trillions of cubic feet of gas – and it hasn't all been found," he emphasized.

Frye said that while Magnum concentrates mainly on the Texas onshore, he and his fellow AAPG member and cohort at Magnum, geologist Gar Willis, focus on St. Mary and Terrebonne parishes in South Louisiana, which they consider to be a profitable niche.

"We generate prospects and dial for dollars," Frye said with humor.

Don Frye, with Magnum Producing in Houston, will present the paper "South Louisiana – Today and Tomorrow" at 10:50 a.m. Tuesday, April 13, at the AAPG Annual Convention and Exhibition in New Orleans.

Gar Willis, also of Magnum Producing, is the co-author.

Going Deeper

He pointed out that over the past decade there have been many Miocene Cristellaria I and Cibicides opima discoveries in south Louisiana, resulting from integration of detailed geology and advanced geophysical techniques.

"These discoveries, typically in a depth range of 13,000 to 15,000 feet, are in a geopressured environment, have excellent productive capabilities and high liquid content," Frye said. "They can pay out in a few months."

He noted many of these are AVO Class 2, where the sands are a bit faster than the shales when wet – but with density change and shear wave properties that come up and the difference in sonic velocity, they begin to look like bright spots that have been exploited on the Gulf shelf for many years.

Willis emphasized there are a number of deeper discoveries typically greater than 15,000 feet that have excellent sand quality and proven capability.

He cited, for example, the UPR/Cabot Etouffee find in 1999 in Terrebonne Parish, which encountered a more than 260-foot gross pay interval beginning at a depth of 18,500 feet.

"Etouffee was a bit off-putting at first as it was a different kind of trap, which was spooky to some, and there was some resistance to drilling," he said. "But we prevailed, and the field has produced more than 200 Bcfe from a few hundred acres."

He noted that another example of good quality deep sands is Contango's Eugene Island Block 10 discovery at 15,000 feet in 2007; it encountered 150 feet of pay in the first well. Other wells were drilled, and current production is over 100 MMcfde.

"We think there's still a lot of potential in south Louisiana, but it's going to take deeper drilling to do it," Frye said. "Once you get below 15,000 feet, the number of wells (drilled) drops off, and you have a lot more opportunities to find things that haven't been tested.

"We're following the trends," he said. "Some continue right on offshore.

"By far the most active player in the deeper stuff has been McMoRan," he noted, "with discoveries such as Flatrock, Mound Point and now Davy Jones."

One shale led to another

Marcellus Gave No 'Big Play' Hints

By LOUISE S. DURHAM, EXPLORER Correspondent

Shale gas plays in the United States may have become almost commonplace, but they continue to hold on to a respectable amount of their initial wow status.

They're still the place to be.

This is evidenced in large part by the majors and the overseas-based E&P companies who have scrambled to cut deals with domestic shale players to get in on the action, or even purchase them outright – think ExxonMobil's announced intent to snap up XTO Energy.

One of the truly Big Daddies of the shale plays is the Middle Devonian Marcellus shale, which trends northeastward from West Virginia into New York with a potentially prospective area of approximately 44,000 square miles, according to AAPG member Bill Zagorski, vice president of geology for the Marcellus shale division at Range Resources.

As of October 2009, more than 3,500 Marcellus wells have been permitted or drilled in the Appalachian Basin since the initial Marcellus discovery occurred in Washington County, Pa., in 2004.

Zagorski noted reserve potential in this geographically extensive play is enormous. Modern estimates range from 50 Tcf to over 500 Tcf, defining the Marcellus as a major world-class hydrocarbon accumulation.

"Reported initial production rates for vertical wells range from 0.100 MMcf/d to over 6 MMcf/d," he said, "and from 0.300 MMcf/d to more than 24.500 MMcf/d for horizontal completions.

"Key geologic and technical factors defining the Marcellus play are similar to other shale gas plays," Zagorski noted. "They include thermal maturity, reservoir pressure, pay thickness, porosity, permeability, gas-in-place, natural fracturing, mineralogy, depth, structural style, target landing issues and fracturing capability."


ZAGORSKI

> "We had just drilled through the Marcellus and had a big show, and I came back with a recommendation to do a Barnett treatment on the Renz well."

Bill Zagorski, vice president of geology for the Marcellus shale division at Range Resources, will discuss "The Appalachian Marcellus Shale Play – Discovery Thinking, Timing and Technology" in New Orleans as part of this year's "Discovery Thinking" Forum at the AAPG Annual Convention and Exhibition.

This Discovery Thinking Forum will be the third presentation of the AAPG 100th Anniversary Committee's program recognizing "100 Who Made a Difference."

It will be held from 1:25-5 p.m. on Monday, April 12.

The New Orleans forum will feature six invited speakers – each a legendary veteran of the petroleum industry who is renowned for success in exploring for and finding hydrocarbon reserves.

This year's program focuses on insights derived from hard won experience and discovery thinking behind the hottest "unconventional" resource plays of the Gulf Coast and Eastern sections.

Presenters in addition to Zagorski, and their topics, include:

- **John Amoruso** – "East Texas, Deep Bossier Sandstone – Amoruso Field."
- **Marv Brittenham** – "Unconventional Discovery Thinking in Resource Plays: Haynesville Trend, North Louisiana."
- **Gregg Robertson** – "From First Idea to 10 TCF in 10 Months: Discovery of Eagle Ford Shale in the Hawkville Field, LaSalle and McMullen Counties, Texas."
- **Mike Forrest** – "Learning from 40 Years' Experience Risking Seismic Amplitude Anomaly Prospects."
- **Dan Smith** – "Discovery Thinking Has Led to 70 Years of Continued Exploration and Development at Stella Salt Dome, Plaquemines Parish, Louisiana."

Surprising Success Story

The Marcellus initially was a teaser, with no hint of becoming a major play.

Just as with other shales, operators were accustomed to getting gas shows while drilling through the dense Marcellus rock on the way to deeper targets. But the shows weren't considered to be a big deal.

When Range drilled the Renz #1 well in 2003 in Washington County to test deeper horizons, these targets didn't pan out. The well did have significant gas shows in the Marcellus, which in this case proved to be the harbinger of a major breakthrough in the shale production.

Chalk it up in part to serendipity.

"I went to Houston in 2004 and tagged up with a friend trying to sell an interest

See **Marcellus**, page 42

Future storm mitigation an issue

Climate Forum to Explore Katrina Impact

By LARRY NATION, AAPG Communications Director

Whether Hurricane Katrina was a weather event or was a spawn of climate change can be debated.

The "bottom line" that is not debated is the widespread effect a natural disaster can wreak on human settlements and industry infrastructure.

The fact that a substantial portion of the U.S. energy industry is centered in the Gulf region meant that the entire country felt the effects of Hurricane Katrina – and that it would be likely to feel the impact of future severe storm events in the Gulf of Mexico.

The AAPG Global Climate Change Committee is sponsoring a forum at New Orleans on "Climate Change, Sea Level Change and Storm Event Impact on Sedimentary Environments and Petroleum Industry Infrastructure, U.S. Gulf of Mexico."

GCCC chair Priscilla Grew says the Committee proposed this session for New Orleans in order to present new research on sedimentary processes associated with major storms – and to respond to the interest within the energy industries in mitigating impacts of future storms in the Gulf region.

This and an oral and a poster session on carbon dioxide capture and geologic sequestration will be the concluding activities of the AAPG Global Climate Change Committee (January EXPLORER).

While, as NASA states, the difference between weather and climate is a measure of time, the session chaired by Julie Kupecz and Jeffrey Levine has gathered a panel of experts to explore some "bottom line" questions:

- What is the historical and recent record of impact of severe storms on coastal erosion, sediment redistribution and flooding along the U.S. Gulf Coast?

Brian J. Soden, of the University of Miami, will set the stage with a presentation on "Modeling and Interpreting the Impact of Severe Storms and Their Relation to Climate."

- How does recent (post-1900) sea level rise relate to post-glacial sea level rise? What are the prospects for the future and the likely impact?

"Impact of Sea-Level Change and Regional Subsidence on Coastal Evolution: Prospects for the Mississippi Delta" will be presented by **Michael Blum**, of ExxonMobil Upstream Research.

- In what way are severe storms affected by climate, and what is the potential long-term impact of climate change on storm frequency and intensity?

"An Overview of Extreme Storms in the US Gulf of Mexico, and Their Coastal Impact" will be presented by **Asbury (Abby) Sallenger**, of the U.S. Center for Coastal & Watershed Studies.

- How is subsidence of the Mississippi Delta, in combination with projected sea level rise, likely to impact regional coastal infrastructure?

John Anderson, of Rice University, will present "Response of Gulf Coast Bays and Coastal Barriers to Changes in the Rate of Sea-Level Rise and Sediment Supply."

- What are the practical consequences as reflected in the strategies and plans being implemented for mitigation and adaptation in response to the risk of future severe storm events?

Robert Patterson, vice president for Shell Upstream Americas will present "Petroleum industry response to storms and sea level changes."

There also is time set for Q&As as well as open discussion – which is always interesting when geologists discuss climate change effects.

The session is set for 1:15-5 p.m. on Wednesday, April 14.

Marcellus

from page 40

in a Floyd Shale prospect in Alabama," Zagorski said, "and the selling point was the Barnett Shale.

"That's when a light bulb went off," he exclaimed. "We had just drilled through the Marcellus and had a big show, and I came back with a recommendation to do a Barnett treatment on the Renz well.

"We put in a large frac in October 2004, and right after that we got some encouraging volumes in rates of gas," Zagorski said. "It was the first large scale water frac and first decent commercial discovery in the Marcellus – kind of like the play starter for the Marcellus play."

The key technologies being used in the play are:

- Horizontal drilling, with length of laterals being very important.
- Hydraulic fracturing.
- Three-D seismic.

Zagorski commented that while 3-D is important, the Marcellus doesn't have as big a geohazard component as in other places. For example, issues in the Barnett such as bottom water are absent.

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 deals with validating seismic interpretation by unfaulting and unfolding.

GEOPHYSICALCORNER

'Unfolding' Yields New Interpretations

By KEES RUTTEN

A pair of scissors always sat next to the box of colored pencils on Kees Rutten's desk, littered with seismic sections, time-to-depth curves and well logs.

The scissors were used to cut up seismic sections and shift the pieces along faults to check correlations and to see the seismic-character variation across faults. One of his successful, scissors-generated well proposals was an oil field trapped laterally against a clay-filled slump scar on a shelf edge in the middle of heavy faulting.

On retirement from Shell, Kees started developing software to replace his scissors. The computer enables him to deal with more complex geology than was possible by shifting rigid pieces of paper. Variation of slip along syn-sedimentary faults and topological problems such as branching faults and crossing faults are now done on a workstation.

Kees uses the terms "unfaulting" and "unfolding" to distinguish his technology from palinspastic restoration technology that is more suitable for structural geological studies.

Kees is passionate about placing his technology in the hands of seismic interpreters and has teamed with Halliburton/Landmark to bring it to the desks of mainstream seismic interpreters under the name "ezValidator."

The two examples in this article speak for themselves: Both sections are from deltaic areas and exhibit growth faults, branching faults and crossing faults.

Each section has 15 to 50 stacked reservoir sands filled with oil and gas.

* * *

▸ The first example shows a structure with two large growth faults that are fairly easy to interpret (figure 1). Seismic character is in general continuous across the faults – even in the deeper sector where growth factors are appreciable.

The surprise is in the unfaulted/unfolded section, where there are several black events (yellow arrows) that terminate halfway along the section. These are oil-filled sands that thin dramatically across the section.

This thinning was originally not noticed; it became obvious only after a costly multi-well appraisal campaign.

▸ The structure in the second example (figure 2) is complex, and even after numerous wells were drilled, the fault pattern remained uncertain, leading to two blow-outs.


RUTTEN

Using unfaulting technology, a fault interpretation was done in several small steps, validating each step during the process. The end result shows the structural interpretation is correct, and that there are subtle truncations (yellow arrows) against intra-formational unconformities in the upper part of the section, which made log correlations difficult during field development.

Originally, the cut-outs caused by these unconformities were interpreted as fault cut-outs.

The unfaulting algorithm is based on elastic deformation. You can think of a beam passing along the seismic profile with one end clamped far away. You press the free end down to mimic the fault throw at a horizon correlation across a fault.

Neither the unfaulting algorithm nor the unfolding algorithm requires information not found in the seismic data being interpreted, but use the faults and horizons that are present in an interpretation. Fault blocks and fault hierarchy are not required. The algorithms are fast and allow seismic data to be moved interactively even with 50 or more faults.

This real-time interaction contrasts with earlier software that required two-to-five days to massage fault blocks on a section and to establish fault hierarchy, with 30 minutes of CPU time needed for each change.

There is an early release of the technology in Landmark's PowerView/ezValidator that can be evaluated. A full release is slated for 2010 in the DecisionSpace Desktop.

* * *

Kees lost one leg due to thrombosis on a long flight to Houston five years ago, but is still skiing in the Alps and sailing his legendary flat-bottom boat on the mudflats in the north of Holland.

He is thinking about a new project using an old seismic vibrator source and EM technology to trip land mines left behind in the Balkan states.

(Editor's note: Kees Rutten, an AAPG member, is with Slokkert Consultancy in Rolde, Netherlands.)

Spotlight on Geophysical Themes in New Orleans

Several geophysical-themed technical sessions are planned for the upcoming AAPG Annual Convention and Exhibition in New Orleans, including:

▸ Seismic Interpretation of Faulted Reservoirs: How to Get the Right Answer the First Time (Monday, April 12).

▸ Geophysical Integration: A Road May to Exploration Success (posters, Monday, April 12).

▸ Innovative Interpretation and Use of Seismic Data (posters, Tuesday, April 13).

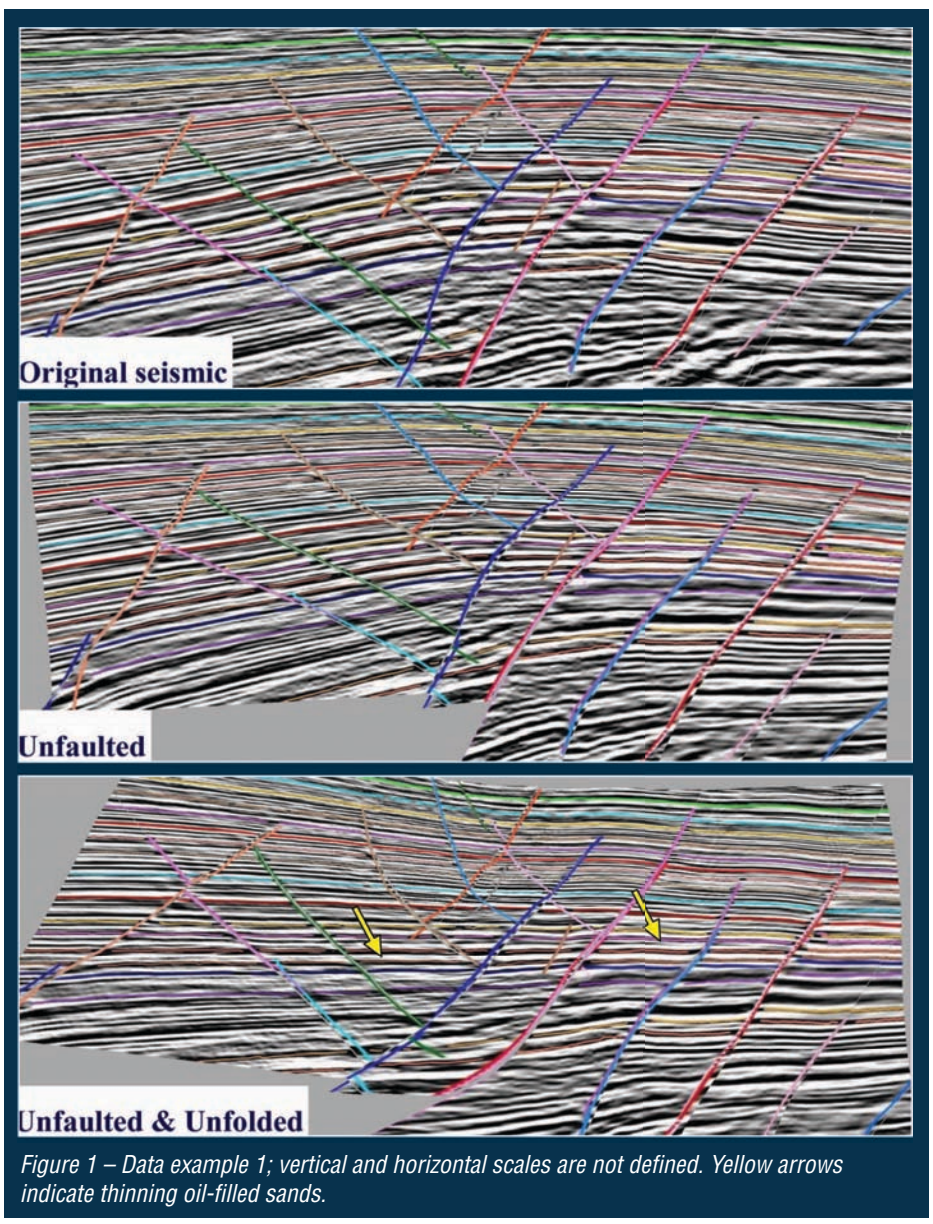


Figure 1 – Data example 1; vertical and horizontal scales are not defined. Yellow arrows indicate thinning oil-filled sands.

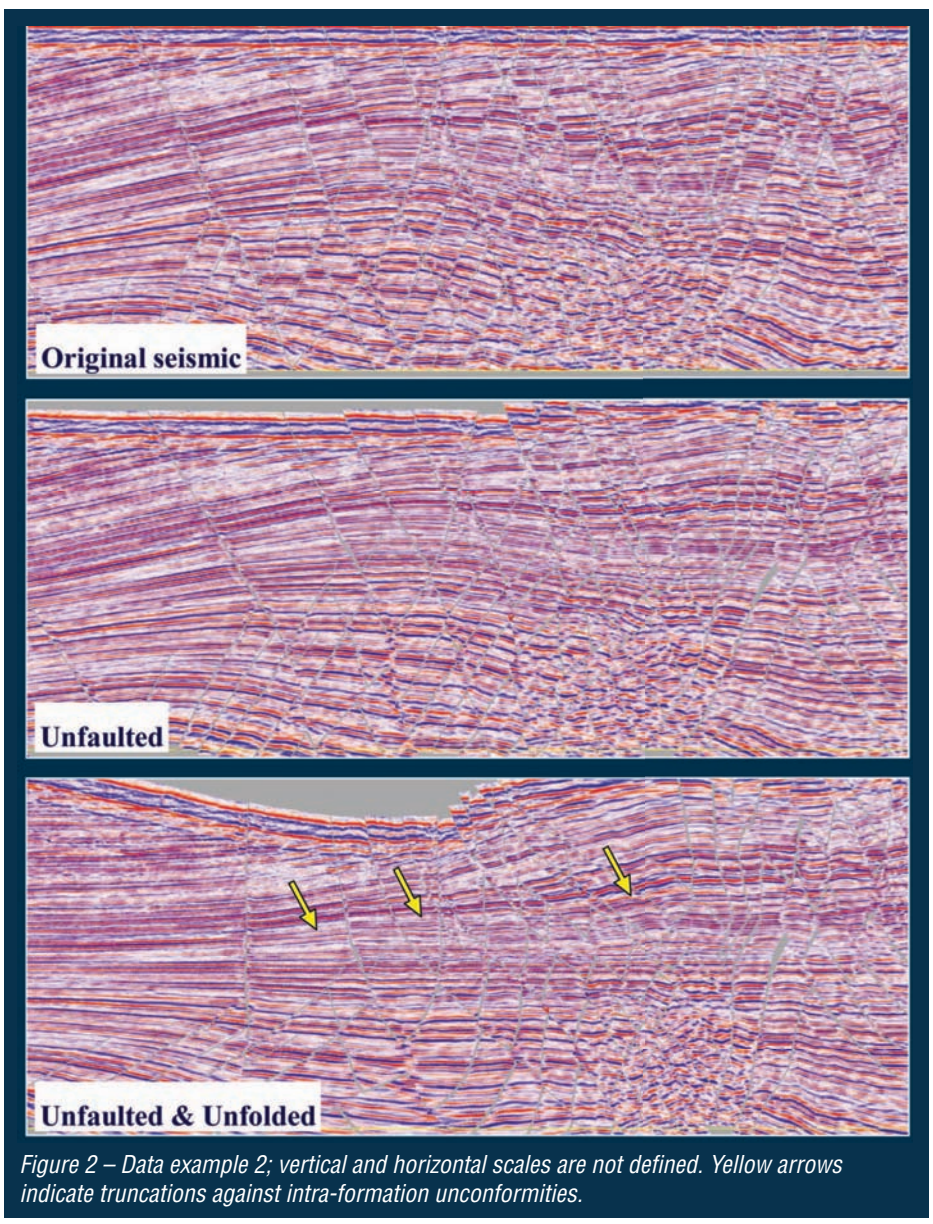
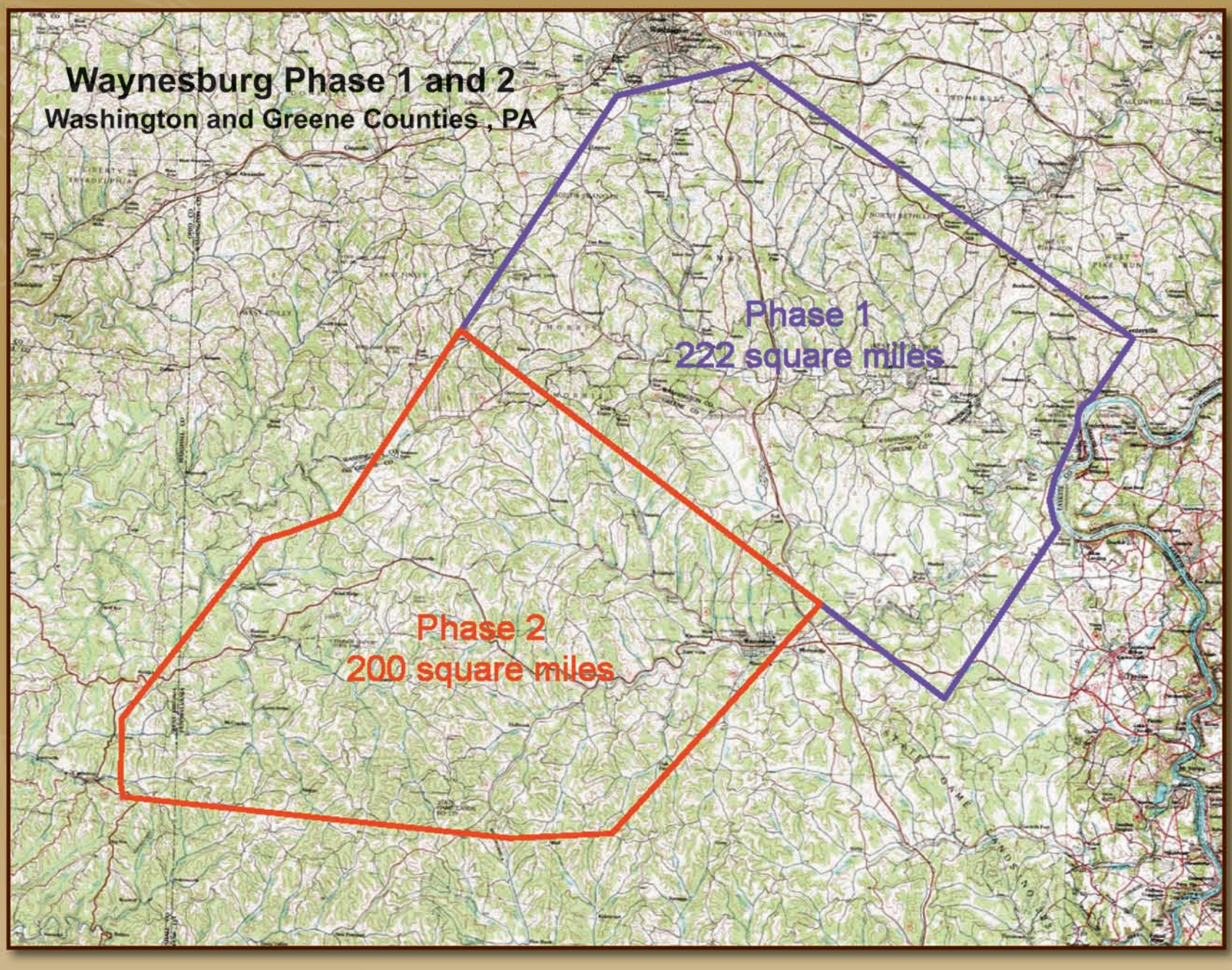


Figure 2 – Data example 2; vertical and horizontal scales are not defined. Yellow arrows indicate truncations against intra-formation unconformities.



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

WASHINGTONWATCH

Study Quantifies Lands Ban Costs

By DAVID CURTISS, GEO-DC Director

Exploring and developing the natural resources on U.S. public lands has been subject of debate for decades.

AAPG's view on this issue is clear:

- As an association we support the leasing, exploration and development of petroleum resources on the nation's public lands.
- It can and must be done in an environmentally responsible manner.
- These resources belong to the American people, and should be developed for their benefit.

What is the cost for not doing so?

A study released in February strives to answer this question by looking at the social, economic and environmental effects of not allowing oil and natural gas exploration and production on federal lands.

The study, "Analysis of the Social, Economic and Environmental Effects of Maintaining Oil and Gas Exploration and Production Moratoria on and Beneath Federal Lands," was commissioned in 2007 by the National Association of Regulatory Utility Commissioners (NARUC), with the support of the Interstate Oil and Gas Compact Commission.

NARUC represents the state public service commissioners who regulate utilities, such as electricity, gas, telecommunications, water and transportation. Their job is to protect consumers and ensure that these utilities are offered at fair rates.

The study was conducted by the Science Applications International Corporation (SAIC), a consultancy, with the support of the Gas Technology Institute (GTI). Their analysis consisted of two steps.


CURTISS

> The study's value is that it begins to quantify the impact of not developing the oil and natural gas resources on the nation's public lands.

* * *

First, GTI reviewed the latest federal estimates of petroleum resources on onshore and offshore federal lands. They then updated these estimates based on new scientific understanding and technological improvements available since the previous estimates were made.

According to GTI's estimates, the undeveloped oil resource on federal lands increases from 186 billion barrels of oil (Bbo) to 229 billion Bbo. The undeveloped natural gas resource increases from 1,748 trillion cubic feet (Tcf) to 2,034 Tcf. These increases are due to the expansion of shale gas activity nationwide and the opportunity to deploy new technology and play concepts in regions that were previously restricted.

Second, the study group evaluated different "energy futures" using the 2009 National Energy Modeling System (NEMS). NEMS is the energy model developed and used by the Energy Information Administration for its analyses and forecasts through 2030.

The team ran a series of scenarios using NEMS looking at the social, economic and environmental effects from 2009 to 2030. The scenarios evaluated the impact of opening various areas to exploration and production, as well as the effect of GTI's updated resource estimates.

The principal conclusions of the study are based on the comparison of two scenarios – (1) EIA's current resource estimates and maintaining production restrictions with (2) GTI updated resource estimates and lifting production restrictions.

When you make this comparison, the costs of restricting access to federal lands become apparent:

- Domestic oil and natural gas production decreases (oil down 15 percent annually, natural gas down 9 percent annually).
- Imports of oil and natural gas increase.
- Energy prices increase (natural gas up 17 percent annually, electricity up 5 percent annually, petrol up 3 percent).
- Energy costs to consumers increase 5 percent annually.
- Gross domestic product decreases 0.52 percent annually.

These are just some of the conclusions reached in the study, which is available free online (www.naruc.org).

They also look at the impact of just removing production restrictions, using EIA's current resource estimates.

You can quibble with any model – its inputs, its outputs and the conclusions reached – but the value of this study is that it begins to quantify the impact of not developing the oil and natural gas resources on the nation's public lands. It does so using the same energy model the government uses for its forecasts. And it clearly shows that failure to develop public resources has real social, economic and environmental costs.

* * *

But wait! Hasn't the moratorium been lifted?

In July 2008, President George W. Bush lifted the presidential withdrawal on the nation's outer continental shelf (OCS), and on Oct. 1, 2008, the Congressional moratorium on OCS development lapsed. But there have been no lease sales in moratoria areas.

In large part that is due to the formal process that the Minerals Management Service uses to manage OCS resources. The five-year OCS leasing program lays out the areas where the federal government will hold

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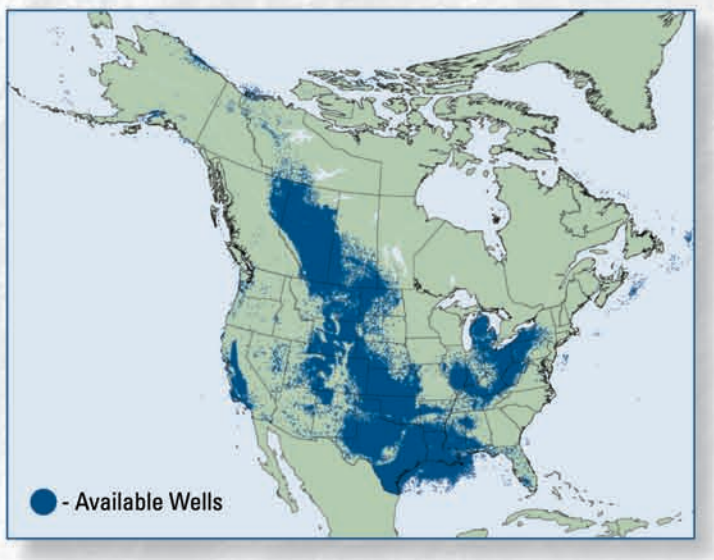
Missing Well Data?



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Editor's note: Drake is a geologist with Pioneer Natural Resources in Denver, Moss-Russell is a geologist with Chevron North America in Houston and Kessel is a geologist with Anadarko Petroleum Corporation in Denver.

Careers can get boost

Network, Activities Key for YPs

By WILLIAM DRAKE, AMY MOSS-RUSSELL and BEN KESSEL


DRAKE


MOSS-RUSSELL


KESSEL

AAPG has had a long-standing commitment to gaining and retaining members, but until the early 2000s there was little representation of the newest geoscience professionals.

The creation of the AAPG Young Professionals (YP) Committee addressed this need, and the committee began the effort to help bridge the critical gap from Student to professional membership, as well as finding ways to represent early career geoscientists.

With 39 percent of new AAPG members over the last 12 months being under the age of 30, this demographic is as important as ever.

Something New

After a hiatus in YP activity, the committee reformed in 2008 under the leadership of Natasha Rigg, with the goal of substantially building on the progress of the early committee efforts. Her first task was to assemble a new committee of dedicated and enthusiastic YPs and formulate a fresh YP mission to:

- Foster a challenging and successful career in the energy business for recent college graduates and early career geoscientists.
- Build an understanding of the value of a lasting relationship between AAPG and young professional members.

Accomplishing this mission requires:

- Open communication with students about careers in earth science and the petroleum industry.
- Identifying and serving early career needs of young geoscientists.
- Offering opportunities for networking, career guidance, learning and enhancing professional competence.

Early committee successes include the establishment of regional YP representation in the United States to complement the AAPG Regional Sections; executing a well-received student "Meet 'n' Greet" at the 2009 Annual Convention and Exhibition in Denver; and development of ambitious plans for the future.

Going Global …

A major part of fulfilling the YP's mission vision will include a rapidly growing pool of international YPs.

An innovative outreach program includes multimedia exposure via Facebook, YouTube and the AAPG Web page to tap into the extended network of YPs. The reward is an increased voice of YPs and students across the United States and beyond.

With new YP committee members already involved in Europe, the Middle East and Asia, the future looks bright.

But what are the specific, tangible goals for a fledgling global network?

… Working Local

With a boots-on-the-ground approach in the represented regions, the YPs are primed to make a difference.

In addition to guiding graduating students as they negotiate their way to professional membership, and offering local networking opportunities and career guidance, the YPs are going beyond the basics.

AAPGers are working with other societies and associations to organize local recreational activities, attend sporting events and perform community service – a model of collaboration that has worked well and continues to grow.

YPs with English as a second language will benefit from planned technical writing courses, and implementation of a local speaker series is under way for well-needed outreach to the non-geoscience community.

The Road Ahead: ACE 2010

Some of the best places to see the YP Committee in action are the AAPG conventions, exhibitions and student expos – and after our successful presence at the 2009 ACE in Denver and the recent Student Expo in Houston, the YPs have much planned for New Orleans

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Washington
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lease sales. Areas not included in the five-year program are not offered for leasing.

Interior Secretary Ken Salazar undertook a thorough review of the OCS leasing program upon entering office (September 2009 EXPLORER), but has not yet released the results of that review.

The state of Virginia actually petitioned the Interior Department to include its OCS in the current 2007-2012 five-year program, which MMS did, scheduling a lease sale in 2011 if the moratorium was lifted by then.

However, with the scheduled lease sale looming, Interior has yet to begin its environmental reviews for the lease sale. It hopes to complete these reviews and reach a decision by spring 2012. If the decision is favorable, then Virginia can be added to the sale schedule.

Virginia's two senators, Jim Webb and Mark Warner, both Democrats, responded in a letter to Secretary Salazar, saying that Virginia's governor and politicians from both parties support this lease sale. They continued, "Recent media reports highlighting additional delays are a source of frustration to Virginia and to a nation that is looking to turn around the economy while simultaneously addressing energy security."

Virginia is just one example.

Onshore federal land also are seeing rule changes that, according to Bob Abbey, director of the Bureau of Land Management, quoted by Bloomberg.com, " … will slow leasing."

The fact that the moratoria are no longer in place does not ensure the resources on federal lands will be developed. As the NARUC study shows, this carries a significant cost to the American people.

YPs
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this month.

Notably, the second annual Student and Professional Meet 'n' Greet will be held Sunday, April 11, at the New Orleans ACE – an exciting event offering a networking opportunity for students and professionals.

Let's face it – a student's first convention can be rather daunting. We hope to provide a venue for students to meet professionals from all corners of the petroleum industry and foster professional relationships that last through the convention and beyond.

The Meet 'n' Greet will take place in two parts:

- **Before** the opening session, at 2 p.m., all participants will meet in room 352 at the Ernest N. Morial Convention Center (one floor above the La Nouvelle Orleans ballroom – look for signage). From there, we'll head down as a group to the 4 p.m. opening session.

- **After** the opening session we'll meet in the Exhibit Hall at the Student/YP hub, where we'll be mingling and raffling off great prizes.

This event is open to students, young professional and industry professionals. We'll be e-mailing the sign-up details soon.

Please plan on attending one or all of these great networking opportunities.

Questions about the Meet 'n' Greet? E-mail YP Committee members Ben Kessel (ben.kessel@anadarko.com) or Frank Graf (frank.graf@anadarko.com) for more details.

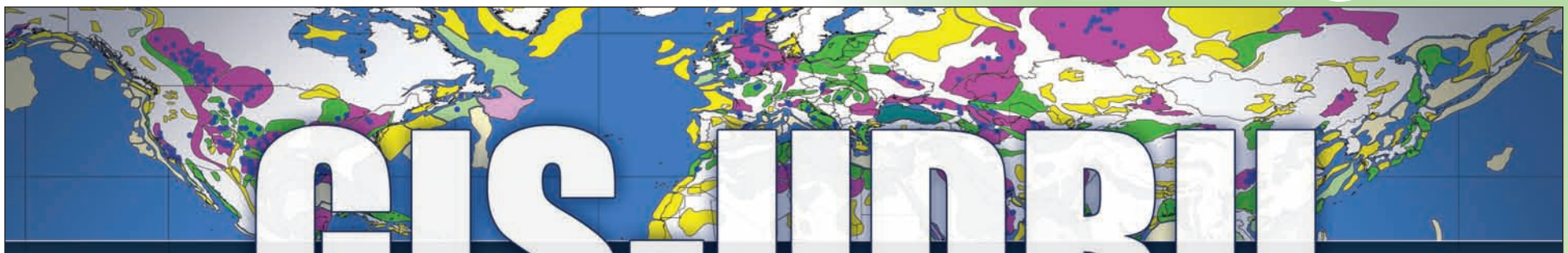
Watch for new bios at the YP Committee's Web link – www.aapg.org/youngpros – and look for the YPs at the AAPG convention this month in New Orleans.

Abstracts Sought For New ATC Meeting

Abstracts are being accepted for the new Arctic Technology Conference, which will be held Feb. 7-9 at the George R. Brown Convention Center in Houston.

The abstracts deadline is June 6.

More information is online at www.arctictechnologyconference.org.



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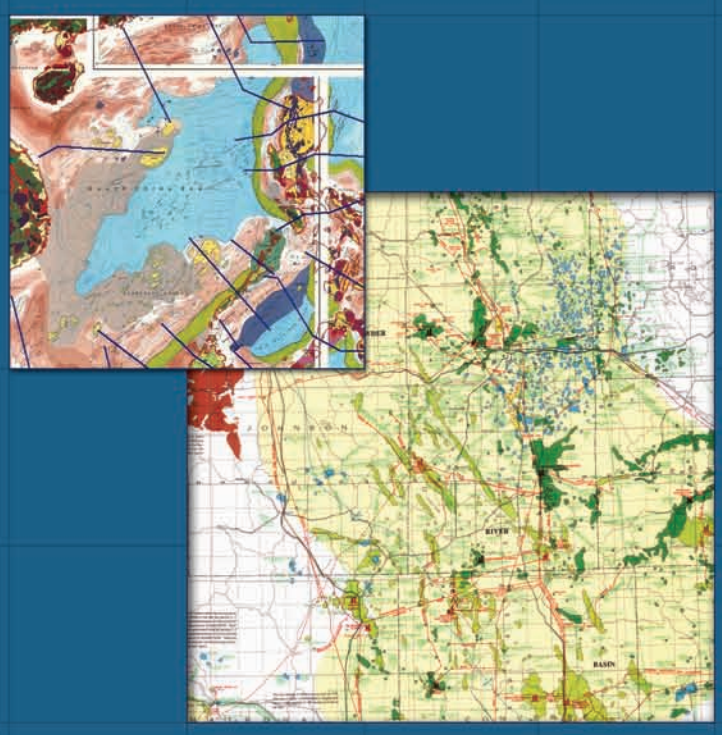

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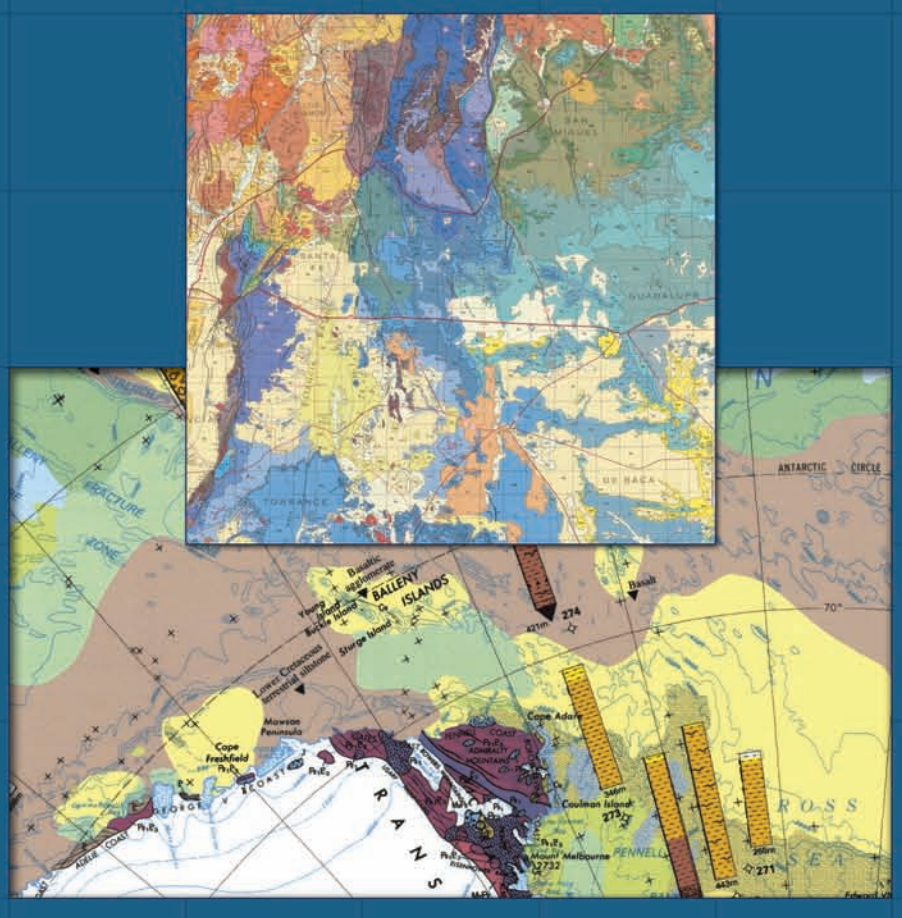

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Many decades of bad ideas

‘Katrina Tour’ Teaches Lessons Learned

By BARRY FRIEDMAN, EXPLORER Correspondent

It’s been more than five years since Hurricane Katrina punished New Orleans and the coast of Mississippi; still, to geologist Stephen A. Nelson there remains a passion, an anger, about what happened, how it could have been prevented, about opportunities lost.

To him, the storm wasn’t merely a metaphor for the incomprehensibility of nature or the incompetence of government; it was personal.

It was home.

“I’ve lived in New Orleans since 1979,” says Nelson, associate professor/chair, department of earth and environmental sciences at Tulane University, “and as long as I have lived here there has always been a push to get a hurricane protection system that would protect us from a Category 5 hurricane.”

The system is still not in place.

Perhaps to exorcize those demons – certainly to help explain them – Nelson will be leading a pre-meeting field trip at this year’s AAPG annual convention called “Hurricane Katrina – What Happened? The Geology of the Katrina Disaster in New Orleans.”

And what happened, he’ll tell you, was a perfect storm of not only nature’s fury but of human short-sightedness.

“In New Orleans,” he said, “the severe damage and deaths were caused because the hurricane protection levees and flood walls … were breached to flood the city.”

And while admitting there were other factors and results, it was that breach that caused the most and significant damage.

NELSON

> “It’s not a good idea to construct canals that give direct access of storm surge into the heart of a populated place like New Orleans.”

“Yes, there was wind damage, but recovery from that would have been relatively quick,” he said. “The fact that 80 percent of the city was flooded as a result of the levee breaches and that the water could not be pumped back out for several weeks was what caused the most severe damage. The levees that failed were all levees built on human made navigation and drainage canals that provided a direct path for storm surge to get into the heart of the city.”

These canals, he said, should never have been built.

“It is not a good idea to construct canals that give direct access of storm surge into the heart of a populated place like New Orleans,” he said. “But, since this has already been done, we need to build a first line of defense that keeps the water out of those canals rather than relying on a levee and flood wall system on the banks of the canals.”

The Cost of Prevention

His field trip at this year’s convention will allow participants to get a first-hand look at many decades of bad ideas.

Stephen Nelson, chair of the department of earth and environmental sciences at Tulane University, will lead the field trip “Hurricane Katrina – What Happened? The Geology of the Katrina Disaster in New Orleans,” on Saturday, April 10, the day before the AAPG Annual Convention and Exhibition opens.

This field trip will travel to the sites of the major levee breaches to explore the geological, historical and engineering factors responsible for the breaches and resulting flooding.

A preliminary field trip guide and other material can be found at www.tulane.edu/~sanelson/Katrina/index.html.

The tour will encompass and help to explain all the geological, engineering and historical factors responsible for the devastation – including those that occurred to the city’s most vulnerable and impoverished area, its 9th Ward.

“What made this area vulnerable was the construction of the Inner Harbor Navigation Canal, Intracoastal Waterway and Mississippi Gulf Outlet, all of which funnel storm surge into the heart of the city.”

Nelson explained that the first hurricane protection system was conceived after Hurricane Betsy in 1965. Authorized by Congress in the Flood Control Act of 1965, the $85 million project was expected to take 13 years to complete and protect New Orleans from a fast moving Category 3 storm.

This type of storm, Nelson commented, was expected to strike once every 200 to 300 years. The project, which was still unfinished a year before Katrina, had ballooned in price to $738 million and a completion date of 2015.

Nelson said the initial funding was never enough, it was never constant and, since 30 percent of the cost was to be collected locally, he thinks there was always pressure from local residents to reduce their share.

Additionally, there were lawsuits from environmentalists; fighting between the New Orleans Sewerage and Water Board, the agency responsible for removing rain water from the city, and the Corps of Engineers; and general incompetence.

See **Katrina**, page 60

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The AAPG Bulletin is a technical journal that is recognized in the industry as the leading peer-reviewed publication for information on geoscience and the associated technology of the energy industry.

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Article highlights include:

A new forward seismic modeling method

Mark Tomasso, Renaud Bouroullec, and David R. Pyles

Spectral recomposition, an improved methodology for generating forward seismic models that make use of the full range of frequencies found within real-world seismic volumes, permits tailored forward seismic models of outcrop analogs to be generated for individual target real-world seismic images.

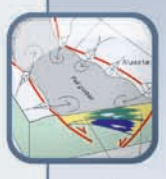
Hydrothermal dolomite reservoirs

D. Lavoie, G. Chi, M.Urbatsch, and W. J. Davis

This paper presents the results of a detailed diagenetic study of a dolomitized pinnacle reef in the Gaspé Peninsula of eastern Canada and integrates the petrographic and geochemical information with the field characteristics of the dolomite body.

Chinese rift basins

Hong-Hong Wei, Jun-Lai Liu, and Qing-Ren Meng



This paper provides a detailed study of the structure and sedimentation of rift basins in the southern Songliao Basin, including structural interpretations of seismic cross sections and analysis of depositional processes, in order to determine controls on hydrocarbon occurrences.

Hydrocarbon preservation risk

Laurent Langhi, Yanhua Zhang, Anthony Gartrell, Jim Underschultz, and David Dewhurst

The distribution of high shear strain from an Australian Timor Sea example is the main control on structural permeability and is primarily influenced by the structural architecture. Lateral variability of fault seal effectiveness is inferred from heterogeneous shear strain distribution and fluid flux.

Project Regrows New Orleans' Urban Forest

By BARRY FRIEDMAN, EXPLORER Correspondent

Think Chevron and you don't normally think about trees. And if for some reason you do, you certainly don't think about 4,000 of them.

You may want to reconsider the connection.

Hurricane Katrina not only figuratively uprooted lives and homes and dreams when it slammed into the U.S. Gulf Coast, it also literally uprooted many beautiful, old trees in and around the city, including an existing urban tree nursery in New Orleans City Park.

And that's where Chevron came in.

It rebuilt that nursery.

AAPG member George H. Rhoads, Chevron's geophysical coordinator for Gulf of Mexico shelf exploration, puts it this way:

"The New Orleans area lost a lot of trees because of Hurricane Katrina. One of the goals of the Chevron Tree Farm Project is to help resupply new trees to the community. To replant and re-grow the beauty of New Orleans."

Four thousand of them.

By planting that many in this new nursery, the company has been distributing the seedlings throughout the city and, with any luck, will one day replace the beauty of the trees swept away by thousands of gallons of Gulf water.


RHOADS

And AAPG members can help – literally. On Sunday afternoon, April 11, you can help.

As part of its Community Outreach Rebuilding New Orleans: A Volunteer Opportunity, Chevron is asking for volunteers to continue with the repotting of those trees, as well as help with fertilizing, trimming, insect control and moving of them throughout the city.

Rhoads says this effort is unique to the Association.

"This program is the first of its kind for an AAPG Convention. If it is successful, we may be able to add it as a regular event in other cities at future conventions."

In a sense, it is an afternoon field camp, complete with a box lunch.

"The Chevron Tree Farm," Rhoads said, "is a great first project for our community outreach program – after all, who better would like to work with the trees than people who love nature and the outdoors – and a love of nature and the outdoors is what got a lot of us interested in geology to start with."

Chevron's tree farm currently contains approximately 4,000 potted tree-seedlings in "grow-out" mode. When ready, the trees are distributed throughout the New Orleans area by non-profit agencies and governmental units.

As to why Chevron is involved, Rhoads says it not only has to do with the company's willingness to do good, but is also part of a change in the country's DNA over the past few years, one that has seen industry, in all professions, taking a more active role in the communities where it operates and its employees live.

"I think we have seen a huge resurgence of philanthropy in the United States over the last few years. A lot of people find it very rewarding to give back to other communities that are in need or that have had problems or disasters."

And no place has this been more in need, or continues to be, than New Orleans.

"It is a long process," he said. "Believe me, to the residents, the city is still not back to where it was."

"Rebuilding New Orleans: A Volunteer Opportunity" is a special outreach event being offered to AAPG members on Sunday, April 11, at the Chevron Tree Farm in the New Orleans City park.

A $15 fee includes transportation from the New Orleans Marriott, lunch, drinks and gloves – and a chance to do something good for others.

The day includes a half-day of maintenance duties such as potting and re-potting seedlings, watering, fertilizing, insect control, trimming, moving trees, etc.

More information is online at www.aapg.org/neworleans/CommunityOutreach.cfm.

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

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SPOTLIGHTON

Current events, multimedia capture interest

Teacher Makes Science Relevant

By BARRY FRIEDMAN, EXPLORER Correspondent

You would expect the winner of AAPG's Award for Excellence in the Teaching of Natural Resources in the Earth Sciences – popularly known as the earth sciences teacher of the year – to have a love of science and teaching.

What makes L. Stef Paramoure, this year's recipient, different is she likes, really likes, teaching it to the age group that can be the most challenging for any teacher and any subject.

She teaches earth sciences to middle school students – a sometimes confusing, emotional collection of hormones and attention deficit disorders.

And she likes it.

"Actually," says Paramoure, who teaches at Canyon Middle School in New Braunfels, Texas, "I think middle school is a great age to teach. Students start out in kindergarten thinking they can do anything: drawing, singing, theater. Sometimes, they can lose that confidence – however, in middle school, I have one more chance."

And in taking that chance, she has excelled.

"It is this very reason that I think I make connections with my students," she said, "because at one point, I was that student sitting in the classroom asking, 'Why do we need to know this?'"

Admittedly, she says, she wasn't always happy with the answers.

"I always felt like science was important," she said, "but my personal experience in my elementary and high school was not very favorable."

L. Stef Paramoure, this year's winner of the AAPG Award for Excellence in Teaching of Natural Resources in Earth Sciences award, doing a podcast for her students.

Paramoure says it wasn't until she started – but just started – her science education at Texas Lutheran University that a "new world" opened up to her.

"I started to appreciate science, but it wasn't until I started teaching science in middle school that I saw the endless everyday science connections that permeate throughout our daily lives."

The Real World

Paramoure says her goal always has been to bring science to life and make it relevant to students – to answer that question.

Her Web site ("Welcome to the World of Stef Paramoure" – yes, in the world of earth science education, she's a bit of a celebrity) provides all the clues you to need to understand her passion:

"I am designing this Web site to share my podcasts, my pedagogy experiences and my passion. I have a vision to use technology as a way to ignite the young minds of today. I strongly believe in children as a valuable, inexhaustible resource that deserves to be nurtured and inspired.

"Knowledge is POWER! Get Some – Give Some.

Young minds of today will not only care for our world tomorrow but they will have the opportunity to shape the future ..."

"I use current events and multimedia to capture their interest," she said, "and then the learning comes naturally as they work to answer their own questions and satisfy their natural curiosity."

Some of those pedagogical techniques include a "Spotlight on Space" program that resulted in star-gazing parties for seventh graders at her school.

Another is called "Science in the Real World," an impressive, ambitious podcast series she has been working on to spotlight real world science.

Some of those titles currently include "Weathering"; "Energy Transformations"; "Wind Turbine System"; and "Adam Lee, Geologist."

She believes podcasts are an integral part of the mix.

See **Paramoure**, page 66

Think outside the computer screen.

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

Short Courses:

JULY 13-16
Basic Well Log Analysis
Location: Denver, CO
Instructors: George Asquith and Dan Krygowski

JULY 26-30
Complex Well – Core Competency – An Asset Team Program
Location: Dallas, TX
Instructor: Robert Knoll

SEPT 11-12
Creative Petroleum Exploration
Location: Calgary, AB, Canada, with the AAPG International Conference & Exhibition
Instructors: Edward Beaumont and Doug Strickland

SEPT 11-12
Image Log Interpretation
Location: Calgary, AB, Canada, with the AAPG International Conference & Exhibition
Instructor: Laird Thompson

SEPT 16-19
Folds, Faults and Hydrocarbons in the Southern Canadian Cordillera – Principles and Practices Combination Short Course/Field Trip
Location: Calgary, AB, Canada, with the AAPG International Conference & Exhibition
Instructor: Peter Jones

Field Seminars:

NEW! **JUNE 21-25**
Fractures and Tectonics of the Northern Appalachian Basin
Location: New York
Leader: Robert Jacobi

JULY 7-14
Modern Terrigenous Clastic Depositional Systems
Location: South Carolina
Leader: Walter Sexton

JULY 11-18
Lacustrine Basin Exploration
Location: Utah
Leaders: Alan Carroll and Meredith Rhodes Carson

JULY 17-23
Seismic Interpretation of Compressive Structures: Field Trip to the Southern Canadian Rocky Mountain Foreland
Location: Calgary, AB, Canada
Leaders: John Shaw and Frank Bilotti

JULY 19-24
Fractures, Folds and Faults in Thrusted Terrains: Sawtooth Range, Montana
Location: Montana
Leaders: William Hansen, Steve Boyer, Chuck Kluth, Jim Sears

Online Courses:

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

E-Symposium Series:

NEW! **LIVE EVENT APR 29 2:00 P.M.**
Seismic Stratigraphy and Seismic Geomorphology: Applications and Workflows for Lithology Prediction Using 3D Seismic Data
Instructor: Henry Posamentier

Last Chance:

APRIL 9-11
Practical Salt Tectonics – Short Course
Location: New Orleans, with the AAPG Convention!
Instructor: Mark Rowan

APRIL 17-22
Deep-Water Siliciclastic Reservoirs – Field Seminar
Location: California
Leaders: Stephan Graham and Donald Lowe

APRIL 24-30
Clastic Reservoir Facies – Field Seminar
Location: Utah
Leader: Thomas Ryer

APRIL 27-30
Basic Well Log Analysis – Short Course
Location: Austin, TX
Instructors: George Asquith and Dan Krygowski

More Science Than You Can Shake A Pick At.

For more information on any AAPG Education programs, call 918-560-2650 or toll-free 1-888-338-3387, or visit www.aapg.org/education.

New Orleans meeting agenda set

HoD to Consider Seven Bylaws Proposals

By STEPHEN A. SONNENBERG, Chairman, House of Delegates

The annual meeting of the AAPG House of Delegates (HoD) will be held on Sunday morning, April 11, at the start of the AAPG Annual Convention and Exhibition in New Orleans.

Expected in attendance are around 250 people, including delegates, past presidents, past chairmen of the HoD, AAPG officer candidates and invited guests.

The HoD will be conducting important legislation and will hear a variety of Association reports. The meeting will be run using Robert's Rules of Order; Mary Bahde (professional parliamentarian from Denver) will act as parliamentarian and advise the chairman about parliamentary issues.


SONNENBERG

The meeting's agenda will include: VIP introductions; campaign speeches by the AAPG president-elect candidates (Ernie Mancini and Paul Weimer); reports from the Association (President John Lorenz; Executive Director Rick Fritz; Treasurer Kay Pitts; Publications, Gretchen Gillis) and AAPG Foundation (Bill Fisher); reports from the Division presidents (DPA, Paul Britt; EMD, Frank Walles; and DEG, Michael Jacobs); and HoD Committee reports and proposed legislation. I have reorganized the traditional agenda, which should "streamline" the meeting.

The HoD committee reports include reports from all of our committees (Credentials, Minutes Approval, Honors and Awards, Rules and Procedures, Constitution and Bylaws, Nominations and Elections, Resolutions, and Newsletter).

- The **Credentials Committee**, chaired by Randy Ray, will check-in all delegates and have them seated in the voting section. Guests will be seated in a non-voting area. HoD officer candidates serve as members of the credentials committee.

- The **Minutes Approval Committee** is chaired by Laura Zahm, HoD secretary/editor. Laura will seek approval of the past-year meeting minutes, which already have been vetted and approved by the HoD officers.

- The 2010 **Honors and Awards Committee**, chaired by Mike Party, made the following recommendations for HoD Awards: Honorary Member of the House, Marty Hewitt; Distinguished Member of the House, Don Clarke and Bob Lindblom; and House Long Service Award, Paul Britt, Jeanne Harris and Susan Landon. These awardees were approved by the HoD officers. Congratulations to all the awardees.

In addition, certificates of service awards for nine and 15 years of HoD service were issued to 17 and 25 people, respectively. I want to thank all the awardees for their long service to the HoD.

- The 2010 **Rules and Procedures Committee**, chaired by Maurice Birdwell, reviewed the Rules and Procedures, considered some items but will not be recommending any changes.

- The HoD **Constitution and Bylaws Committee** had a busy year (as usual) and worked on several issues. Committee chair John Hogg will review the proposed legislation for the HoD meeting. Global corporate structure was discussed at length and the decision of the committee was that it was not necessary at this time. This is an issue that will be revisited in a few years.

All of the proposed bylaws changes

Continued on next page

Continued from previous page

have been vetted and approved by the HoD officers and AAPG legal counsel. The proposed bylaw changes have been published on the AAPG Web site and also submitted to the AAPG Executive Committee and Advisory Council for consideration and comments.

Proposed amendments to the AAPG Bylaws are:

1. Article II, Section 3, to eliminate a reference to a date that is no longer necessary.
2. Article II, Section 10, to eliminate a reference to a date that is no longer necessary.
3. Article II, Section 11, to eliminate a reference to a date that is no longer necessary.
4. Article IV, Section 3, to provide for appointment of delegates from U.S. Affiliated societies if such delegates are not elected prior to 60 days before the annual meeting of the House of Delegates.
5. Article V, Section 1 and Section 6, to provide for the Advisory Council to recommend recipients of honors and awards when directed to do so by the Executive Committee.
6. Article VIII, Section 1 and Section 2, to provide for standing committee co-chairmen and committee managers, and to limit the terms of committee vice chairmen.
7. Article VIII, to add a new Section 4 to the Bylaws to limit the terms of AAPG representatives to non-AAPG committees.

Several of the bylaw changes are in the category I call "house-keeping" (minor language changes, items 1, 2, 3, 5 and 6). We have received some feed back on the proposal for Article V, Section 1 and Section 6, which may result in minor modifications to the motion.

There also are some new bylaws proposed under above items 4 and 7. Under the section on selection of U.S. Society delegates (item 4), new language has been added that enables the Section presidents to appoint delegates to three-year terms when affiliated societies have not conducted elections. This change is being made to eliminate the chronic lack of delegate representation from delinquent Affiliated societies.

New language under the "Representatives to Non-Association Committees" (item 7) is being added that essentially limits how long someone can serve on an outside committee. This is being done to encourage more membership participation on these outside committees.

I encourage AAPG HoD members to review and be prepared to vote on the proposed changes. The HoD officers approved and are recommending all the proposed bylaw changes to the House.

▸ The HoD **Nominations and Elections Committee** will present recommendations for the new House officers. The committee, chaired by Larry Wickstrom, is recommending Peter Lloyd and Jeff Lund as candidates for HoD chairman-elect, and H.W. Peace and Patrick Gooding for the HoD secretary-editor position. Before nominations close, I also will see if there are additional nominations from the floor. The results of the election will be announced at the end of the HoD meeting.

▸ Two societies have petitioned AAPG for affiliation status: Balochistan Geoscientists Association (GGSA) and Atlantic Geoscience Society (AGS). The BGSA is from Pakistan and AGS is a Canadian organization. These applications have been reviewed by AAPG legal counsel and the AAPG Executive Committee. The **Resolutions Committee**, chaired by Sandi Barber, will recommend to the House affiliation with these groups.

▸ The **Newsletter Committee** (i.e., Delegates Voice) chaired by Laura Zahm initiated electronic distribution of the Delegates Voice and also increased the distribution by sending it to all AAPG Active members. I want to commend Laura for doing an outstanding job!

The agenda for the 2010 House meeting is comprehensive. I ask all HoD members to come prepared to discuss and vote on items. We also have an opportunity to bring up new business that may affect the House meeting that will be chaired by David Hawk in 2011 (Houston).

My duties this year as the HoD Chairman include being on the AAPG Executive Committee, attending Section and the International meetings. This year's AAPG Executive Committee has been busy and worked on many issues (and we won't be done until June 30). I want to commend John Lorenz, AAPG president, for his outstanding leadership and guidance.

I am looking forward to the House of Delegates meeting in New Orleans. The agenda is full, but I am hopeful that the meeting will conclude around noon!

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

REGIONS&SECTIONS

Diverse Panel Eyes Workplace Diversity

By CAROL McGOWEN, Regions and Sections Manager

The Professional Women in Earth Sciences' (PROWESS) third Diversity Seminar luncheon – an examination of the economics of diversity from a geoscience employment perspective – is set for New Orleans during the AAPG Annual Convention and Exhibition.

"The Economics of Diversity – Competing For and Leveraging Employee Diversity in a Global Petroleum Industry," will be held at 11:30 a.m. Wednesday, April 14, in the La Nouvelle Orleans Ballroom.

The panelists for this year's program will not only examine the issues, dynamics and trends in today's increasingly diverse petroleum industry, they themselves also reflect those changing demographics.

Today's petroleum industry, after all, comprises a diverse set of employers, including small independents, mid-size exploration and production companies, integrated energy companies and national oil companies – not to mention the numerous service companies, government agencies and academic institutions that play a role in the exploration for and development of petroleum resources.

Not coincidentally, this year's panelists – hailing from Saudi Arabia to Texas – represent the industry's diversity, and they will share insights from their various perspectives, experiences and organizations on how diversity is viewed, managed and leveraged across our industry.

They'll be discussing:

- How do geoscientists choose a company with which to begin their career?
- What factors influence mid- and late-career professionals to stay with or change companies?
- What is the value of diversity to employers?
- Questions from the audience.

Panelists also will share insights from their various perspectives as men and women at different points in their careers; their experiences on how diversity is viewed, managed and leveraged across our industry.

Panelists include:

- **Hussain Al-Otaibi**, manager-exploration technical services, Saudi Aramco, Dhahran, Saudi Arabia; also president of the AAPG Middle East Region.
- **Allyson Anderson**, professional staff, U.S. Senate Committee on Energy and Natural Resources, Washington, D.C.
- **Kim M. Bates**, vice president-Americas, ExxonMobil Exploration, Houston.
- **Allen Gilmer**, CEO, Drilling Info Companies, Austin, Texas.
- **Lorena Moscardelli**, research associate, Bureau of Economic Geology, University of Texas at Austin.
- **Scott Sachs**, vice president-geoscience, Northern Division, Chesapeake Energy, Oklahoma City.

For luncheon registration, which is sponsored by Chevron and AAPG member Sunday Shepherd, see www.aapg.org/neworleans/Luncheons.cfm.

A limited number of subsidized student tickets may be available.


AL-OTAIBI


ANDERSON


BATES


GILMER


MOSCARDELLI


SACHS

Katrina

from page 52

"In my opinion, this likely led to decisions that were not in the best interest of safety … all of which resulted in sacrifices that ultimately led to a substandard hurricane protection system."

To Nelson, the problem was not one of just degree but of kind, for the system had to do a number of things:

"We realized that such a system must also involve measures to slow coastal erosion and restore coastal areas that had been eroded over the last 50 years."

It's impossible to fully put in dollar figures the cost of Hurricane Katrina, but Nelson says most believed a project to have bolstered those levees would have been about $35 billion – or about a fifth of what will eventually be spent on clean-up, rebuilding and relocation.

"If such a project had been carried out in a timely fashion," Nelson says, "then yes, in my opinion much of the devastation could have been prevented."

It's not just a prediction.

In September 2008, for instance, as Hurricane Gustav was approaching New Orleans, an evacuation order was issued. This time, according to Nelson, a substantial effort was made to provide a means of evacuation for those without the ability or economic means to leave.

"Although Gustav did not result in a disaster for New Orleans, lives certainly would have been saved had Gustav made a direct hit," he said. "My biggest concern, however, is that the lessons learned will be forgotten over the next several years as memories fade and press coverage wanes."

In thinking of the future storms and the welcome mat that is those channels and canals, Nelson is even more concerned.

"My hope is that complacency will not once again result in another catastrophe."

WWW UPDATE

Digital Maps Ready For Download

By RON HART, AAPG/Datapages Manager

Digital maps are the buzz today at AAPG. Datapages is slowly changing the GIS-UDRIL program into a user-friendly format (more about that in a few months) and georeferenced files are being published more frequently. The AAPG Bookstore now offers selected map files for immediate download.

Of particular note from AAPG/Datapages are three series of mapping:

Dibblee Geological Maps of California.

Now you can pick from more than 350 geological quadrangles depicting California geology on a topographic base and representing years of detailed field research. Go to the AAPG Bookstore Home Page and browse the right column [Digital Files] under "Downloads – Dibblee Maps."

The AAPG Bookstore is the official online distributor for digital copies of geologic maps of the Thomas Wilson Dibblee Jr. Map collection, as published by the Dibblee Geological Foundation at the Santa Barbara Museum of Natural History. These digital maps are in the GeoPDF format, which provide the user the ability to view and/or export map layers to other applications.

Each map is priced at $22 and can be downloaded immediately.

The scale varies from 1:24,000 to 1:62,500 and features high-quality layered PDF created from the original mapping files. These include a U.S. Geological Survey topographic map overlay layer.

Maps are geo-registered to the four corners of each map using the original USGS overlay projection: (a) North American Datum 1927 (NAD 27), and (b) Universal Transverse Mercator Grid (UTM zone 10 or zone 11).

All maps are within the state of California and were field mapped by Thomas Wilson Dibblee Jr.

AAPG geological highway maps.

All 12 maps in the original AAPG Geological Highway Map series have been scanned to PDF format and can be downloaded immediately from the online AAPG Bookstore. Go to the AAPG Bookstore Home Page and browse the right column [Digital Files] under "Downloads – Highway Maps."

AAPG's GIS Publications Committee has initiated a revision and update of the popular map series and plans for the first (revised) map to be published in 2010. AAPG member John Minch, of Santa Barbara, Calif., is serving as the map editor for the revisions.

Until they become available, the older editions are available online as a PDF file download.

Users will be able to print multiple copies from the PDF source document, where copies are needed for classroom use or for geological continuing education (for field trip use). Because the PDF file format adapts to any size printer, the user is limited only by the size of his printer and sheet.

Each high-resolution map (PDF format) costs $24.

AAPG/OSU Incised Valley Study files.

The AAPG Foundation (acting through the Boone Pickens Digital Geology Fund) funded research in late 2009 to produce a catalog of Incised Valley Fill (IVF) oil and gas fields worldwide. The research consortium members (AAPG/Datapages and Oklahoma State University's department of geology) have targeted more than 100 IVF fields in their multi-year study. Each will be available upon completion via the AAPG Bookstore for a nominal user fee of $18 per study.

Each IVF record will consist of a source document (comprising the most useful reference) and a spreadsheet of field and/or reservoir information, which can be mapped using standard GIS tools.

All spreadsheets include latitude/longitude information.

All IVF records also include additional (best) images and maps from a variety of data sources.

The interface for accessing the Dibblee maps of California, now available online.

Mobile Bay a product of good fortune

Serendipity Is Explorationists' Friend

By BARRY FRIEDMAN, EXPLORER Correspondent

Like the size of fish and the exponential way in which they grow the more fishermen tell the story of the catch, the historical accounts of exploration successes (and failures) can also lend themselves to hyperbole.

In 1979, when MOEPSI, a wholly owned subsidiary of Mobil Oil Corporation, discovered the natural gas field in Alabama's lower Mobile Bay, it was, according to one of those involved, a combination of luck, sound technical and managerial decisions, and a triumph over legal and environmental hurdles.

"I worked for Mobil for 37 years on five continents," says AAPG member Weldon Frost, who was exploration manager for the company in New Orleans from 1977-81, "and I observed that Mobil's big fields were found as a result of serendipity."

In the case of Mobile Bay, serendipity meant the discovery of gas at almost 21,000 feet.

And serendipity may be why Weldon – along with Scott Hubbard, who is presently with the Mobile Bay Asset Team – will be presenting a paper at this year's History of Petroleum Geology forum at the AAPG Annual Convention and Exhibition in New Orleans.

His paper, one of four in the forum, is "The Somewhat Accidental Discovery of Mobile Bay Gas Field: A Story of Perseverance and Good Fortune."

"Mobile Bay was thought to be a closure caused by a salt swell, but turned out to be part of a colossal field of whale-back sand dunes," Weldon said. "It was so deep and so hot that it might not have been drilled a few years later as geochemistry evolved and it could have been considered burned out.

"We thought about that while we were having all the problems of logging and testing."

No More Monkey

Weldon, now a retired exploration consultant residing in Longboat Key, Fla., said the difficulties with the project happened almost immediately.

"It took nine years to get a permit to drill," he said, "and that didn't happen until the completion fluid was blown down to 10,000 feet."

Additionally, he says, there was "… environmental resistance, lousy seismic, drilling problems, Hurricane Frederic, no particularly encouraging shows, logging problems due to the high temperature and extreme formation damage."

If that weren't enough, the field also was located in the center of a recreational and historical area, a Civil War battlefield.

But, like a fisherman who's been through it before, Weldon shrugs off the rough conditions: "Pretty ho-hum, wouldn't you say?"

For Weldon, who says his talk will focus on the technical aspects of the discovery, it was a personal experience – even if he can't remember all the emotions.

"Thirty years later it's hard to recollect any feelings," he said, "but if anything, it was probably a relief to get that monkey off our backs and turn it over to the production department. I can't speak for the other team members. Of course we were, and still are, delighted that it turned out successfully."

The reason he and Hubbard are telling the story now is because of the contrasts – some great, some not – in how exploration is done.

"Exploration is a form of research," Weldon said, "and it takes management and leadership to get it moving in the right direction."

Weldon wants you to know that the ingredients then, as now, are the same: "Never give up. Perseverance. And teamwork will never go out of style."

Modern Problems

But you get the sense Weldon feels it's not as simple as it once was. Most factors – everything from costs to environmental concerns to local resistance – are tougher and harder to overcome.

"Yes," he says when asked whether a Mobile Bay would happen today, "such a discovery would still take place. The geochemist would have a good handle on the maturity of the hydrocarbons, the seismic is infinitely better (3-D), the play is well-known, drilling technology, mud and bit design would make it cheaper operating and logging equipment is much better for high temperatures."

Continued on next page

AAPG members Weldon Frost and Scott Hubbard will present the paper "The Somewhat Accidental Discovery of the Mobile Bay Gas Field: A Story of Perseverance and Good Fortune," as part of this year's History of Petroleum Geology forum at the AAPG Annual Convention and Exhibition in New Orleans.

The forum will be held from 1:30-3 p.m. Sunday, April 11, at the Ernest N. Morial Convention Center.

Other presenters and their topics are:

- Rasoul Sorkhabi – "The Miri Oil Field 1910: The Centenary of the First Oil Discovery in Borneo, Southeast Asia."
- Renee Clary and J.H. Wandersee – "Locating the Play: The History of Visualization in Petroleum Exploration."
- John Martin – "The Oil and Gas Industry in the Empire State: Past, Present and Future."

FOUNDATION UPDATE

The AAPG Foundation will have a strong presence at this year's Annual Convention and Exhibition in New Orleans.

▸ The Foundation will have a special area within the AAPG Center in the exhibits hall, where you can get all of our latest information – or just stop by to talk to Foundation personnel, who will be there greeting visitors throughout the meeting.

▸ Foundation chairman William Fisher will present this year's Award for Excellence in the Teaching of Natural Resources in the Earth Sciences – the earth science teacher of the year award – to L. Stef Paramoure at the April 12 All-Convention Luncheon.

▸ Members of the Foundation Corporation and Board of Trustees will meet Monday, April 12, immediately following the All-Convention Luncheon.

▸ Edward Heath and William Fisher will host the annual Chairmen's Reception in New Orleans on Tuesday night, April 13, for Trustee Associates, spouses and invited guests at the annual meeting.

Of course, you don't have to be in New Orleans to be up-to-date on Foundation activities – just go to the Web site at http://foundation.aapg.org.

And remember, all AAPG members are encouraged to support the Foundation programs and join the Meeting Challenges Assuring Success Campaign today.

For more information contact Rebecca Griffin, Foundation manager, at 918-560-2644; toll-free 888-945-2274, ext. 644; or at rgriffin@aapg.org.

FOUNDATION CONTRIBUTIONS

Foundation (General)
BHP Billiton Matching Giving Program
Matching gift for Robert Grubb
BP Fabric of America Fund
Matching gift for Thomas Byrd
Janet Sue Brister
Chevron Humankind
Matching gift for Richard Ball, Jessica Poteet and Rhonda Welch
Travis Robert Glauser
John E. Kimberly
Kenneth Dale Luff
In honor of Bill Barrett
Thomas E. Matson
Larry Nation
Mark Preston Nibbelink
Robert Anselm Ortalda
In memory of Paul Schnurr
Brett J. Ortego
Robert Edward Tehan
Joshua Creviere Turner
Charles William Welby
In memory of Harold Fox

Digital Products Fund
Baylor University
Joshua Creviere Turner

Texas A&M University
Tosin Eniola Majekodunmi

University of Colorado
Joshua Creviere Turner

Grants-In-Aid Fund
EOG Resources
Matching gift from Jeff May
John D. Haun
In memory of John M. Browning
Glenn Scott Robertson
In memory of Jean Marie Knudsen; in honor of John Cooper

Gustavus E. Archie Memorial Grant
Travis Robert Glauser

Eddie David Named Grant
Vincent Thorsten Larsen
John and Nancy Yates

Fred A. and Jean C. Dix Named Grant
James E. Briggs

Grants-In-Aid Committee Named Grant
Rebecca L. Griffin

Michel T. Halbouty Memorial Grant
Tosin Eniola Majekodunmi

Imperial Barrel Award Fund
Devon Energy Corp.

K-12 Education Fund
Curtis L. Johnson
Sandy Meyer
Susie Moore
Susan Smith Nash
Joshua Creviere Turner

Named Public Service Fund
James A. Gibbs
In memory of Jerry Nelms

Boone Pickens Digital Geology Fund
Joshua Creviere Turner

E.F. Reid Scouting Fund
Terri Duncan
Ronald L. Hart
Bryan Haws

IN MEMORY

Allen Spooner Braumiller, 75
Ocean Springs, Miss., Jan. 29, 2010

Jules Ramon DuBar, 85
Charlottesville, Va., March 17, 2009

Edward Alricks Hamilton, 92
Marietta, Ohio, Dec. 18, 2009

Michael W. Schlorholtz, 57
Houston, Feb. 6, 2010

Anthony Trabue Statler, 81
Hendersonville, N.C., Jan. 15, 2010

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

Continued from previous page

But …

"Rig costs are much higher," he said, "and environmental oversight is probably stronger."

To that point, he talks about two men who were instrumental in making Mobile Bay a reality.

The first was Ken Keller, general manager of the operation, based in New Orleans, and AAPG member Tom Joiner of the Alabama Oil and Gas Board, who, Weldon says, "was a rare visionary in government and who was keenly in favor of offshore drilling."

Together, Weldon said, they managed to satisfy the environmental groups of the day. Those men, and memories of others like them, have Weldon curious about the managers of today and whether they would have the guts to continue to blow down the completion fluid to 10,000 feet until they got a sample of formation fluid.

In the final analysis, he believes they would – but wonders whether serendipity has met its geologic match.

"The environmental lobby has the flexibility to give approval provided things are done to protect the environment," he said, "not just stand in the way of drilling.

"I just the other day googled the permitting process for drilling on the North Slope of Alaska," he said, "and there were so many agencies that had to be cleared – both fed and state – that I wondered who in hell would want to go through all that just to drill a well?"

MEMBERSHIP&CERTIFICATION

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

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

Information included here comes from the AAPG membership department.

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

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

For Active Membership

Colorado

Guttery, Lisa, self-employed, Denver (B.G. Reddick, N.B. Waechter, R.J. Bailey)

Indiana

Sumner, Russell Raymond, Metropolitan School District Perry Township, Indianapolis (R.L. Sumner, G.A. Gebhardt, T.N. Lewis)

Kansas

Rush, Jason, Kansas Geological Survey, Lawrence (J.D. Doveton, D.F. Merriam, L.L. Brady)

Louisiana

Guzman, Carlos, G Geophysics, New Orleans (reinstate); **Palmes, Stephen Lance**, Minerals Management Service, New Orleans (R.F. Poling, W.W. Shedd, G.H. Hasseltine)

Michigan

Rilling-Hall, Sarah E., Shell E&P, Ann Arbor (M.K. Davis, K.W. Bramlett, K.M. Woody)

Oklahoma

Gardner, Christopher Stephen, Chesapeake Energy, Oklahoma City (E.M. Rothman, R.L. Snyder Jr., B.J. Carney)

South Carolina

Waddell, Michael G., University of South Carolina, Columbia (reinstate)

Texas

Azike, Ogochukwu P., Schlumberger, Dallas (L.M. Larsen, H.D. Gamero, C.K. Miller); **Bhakta, Bhavesh Ranjit**, ExxonMobil, Houston (S.D. Siemens, H.T. Herdklotz, J.C. Sherrill); **Fortner, David William**, independent, Houston (reinstate); **Heigl, Werner M.**, Apache Corp., Houston (M.S. Bahorich, M.A. Abrams, R. Johnson); **Hernandez, Roda**, Conoco Phillips, Houston (R.J. Kopper, W.W. Clopine, V. De Choudens-Sanchez); **Ibanez, William D.**, ExxonMobil, Houston (G.M. Gaskins, F.J. Goulding, K.M. Sementelli); **Leone, John Vincent**, Whiting Oil & Gas, Midland (D.J. Entzminger, J.K. Southwell, M.A. Raines); **Loyd, Megan Denise**, Texland Petroleum, Fort Worth (B.E. Lee, K.W. Davis, S.S. Smith); **Mills, Joseph Loren**, Schlumberger Carbon Services, Houston (J.E. Jordan, D.M. Jordan, L.T. Billingsley); **Mohler, Robert R.J.**, Lockheed Martin, Houston (P.W. Britt, J.R. Giardino, G.E. Kronman); **Nash, Mike S.**, ExxonMobil, Houston (P.O. Yilmaz, P.E. Patterson, J.M. Erich); **Santiago, Michael Enrique**, Poro-Labs Inc., Houston (B.J. Fossum, C.E. Cusack III, L.R.B. Hammons); **Suurmeyer, Nathan Robert**, Shell E&P, Houston (P.R. Smith, E.C. Bartsch, A.D. Hanson); **Whitman, Nathan Aaron**, Drillmar Oil & Gas, Houston (D.W. Hughes, R.B. Keller, D. McCarver); **Wolinsky, Matthew Adam**, Shell International E&P, Houston (Z. Sylvester, D. Minisini, J.G. Solum); **Zhang, Jilin**, Baker Hughes, Cypress (R.S. Anderwald, K. Yared, D.B. Parnell)

Virginia

Doolan, Colin A., U.S. Geological Survey, Reston (C.S. Swezey, P.D. Warwick, C.B. Enomoto)

West Virginia

Templin, James Edward, Energy Corporation of America, Charleston (P.A. Sullivan, R.K. Schamp, D.R. Wehrle); **Vance, Timothy**,

Continued on next page

Member Services Set for New Orleans

By VICKI BEIGHLE, AAPG Membership Manager

Members will have access to a variety of services at the always-popular AAPG Center during the upcoming AAPG Annual Convention in New Orleans.

The Center is located in the exhibits hall of the Ernest N. Morial Convention Center, and when members stop by they can:

▸ Pay dues.

The annual meeting is the perfect time and place to pay annual dues for the upcoming 2010-11 fiscal year. Visit us at the AAPG Bookstore (located in the AAPG Center), and in a matter of minutes you'll be paid-up for the entire year.

Incidentally, we will accept payments with or without the actual statement and will, of course, provide receipts.

Don't forget: Members who earn less than US $50,000 annually may qualify for 50-75 percent savings on their dues, based on our graduated dues structure.

▸ Visit the general store.

This is the perfect place to pick up an AAPG convention souvenir – for their family, friends or themselves – and know that the proceeds directly benefit the Student Chapters volunteers who operate the store.

▸ Learn about and/or request Emeritus membership status.

Members who are 65 and have at least 30 years of membership may be eligible to change their classifications.

▸ Update your membership file.

Members can change/update their address/employer/e-mail – in short, you can review your personal profile/member record in AAPG.

▸ Learn more about Members Only.

Did you know there are a lot of benefits available online?

▸ Win a prize.

Everyone who visits the Member kiosk will have a chance to win a Starbucks gift card (one drawing daily).

Look for this and a lot more – did we mention the enormous display of AAPG books that will be available? – all within the AAPG Center in New Orleans.

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.

READERS' FORUM

Dismissing the Dilemma

Regarding the January President's Column ("Sunsetting the Global Climate Change Committee"): Though I concur with the decision to abolish the AAPG Climate Change Committee, I am very disappointed with some of the letters from members regarding that action as published in the February Readers' Forum.

The letters downplayed or dismissed the phenomenon of global warming.

One letter correctly noted that earth scientists of AAPG should educate the public about climate variability over the earth's history, but the author went on to deny the earth is warming now and implied that all "earth scientists" should be telling the public that climate change is not true.

These members should realize there are many more geologists (and other responsible scientists) who have examined the evidence for warming and support policy decisions to reduce our contributions to greenhouse gas emissions.

I am a longtime AAPG member (since 1981) and a supporter of responsible oil and gas resource development, but I will continue to explain the real threat of global warming to those I meet and those I teach.

David Becker
Omaha, Neb.

Highly Appreciated

As explorationists we are all aware that the main thrust and the largest potential for growth of the AAPG is in the International arena. However, we in a relatively small affiliated domestic society are encouraged by the attention we have received from the AAPG staff and officers.

Last year then President-Elect John Lorenz made the journey from New Mexico to make a fine presentation to the Kansas Geological Society. This year we have enjoyed equally fine presentations by Rick Fritz, executive director of the AAPG, and Dave Rensink, current president-elect, from Tulsa and Houston, respectively. This attention to a domestic society bodes well for the present and near future of the AAPG.

I would be negligent if I didn't remark that in the past we have received visits from a number of national officers.

Thanks, AAPG.

Robert D. "Bob" Cowdery
Wichita, Kan.

(Cowdery is an Honorary Member and past president of AAPG.)

Continued from previous page

Dominion Exploration & Production, Jane Lew (C.A. Edmonds, R.E. Goings, D.M. Reif)

Australia
Burra, Agi, Xstrata Coal, Wangi Wangi (J.G. Kaldi, S.H. Begg, S. Thomson); **Webb, Gregory Edward**, Queensland University of Tech, Brisbane (D.B. Barrenger, V. Ziolkowski, J.A. Simo)

Canada
Bechtel, David James, Energy Resources Conservation Board, Edmonton (M. Grobe, C.D. Rokosh, T. Lemay); **Cupkovic, Tomas**, Schlumberger Canada, Calgary (M.A. Lamb, A. Ali Dalir, P.A. Fothergill); **Kollmeier, John M.**, Husky Energy, Calgary (C.F. Lamb, R.J. Wachtman, K.M. Schwartz); **Mei, Shilong**, ERCB/Alberta Geological Survey, Edmonton (M. Grobe, C.D. Rokosh, C. Henderson); **Thenin, Damien**, Boyd PetroSearch, Calgary (S. Bujor, M. Clegg, A. Fox)

Colombia
Hernandez, Roberto, Ecopetrol S.A., Bogota (V.O. Ramirez, B.E. Velasquez, H.E. Leetaru)

Denmark
Steiner, Stefan, Maersk Oil, Copenhagen (R.A. Ensley, M.P. Salmon, L.N. Jorgensen)

England
Bell, Julie Dee, London South Bank University, Yarmouth, Norfolk (D. Satterfield, P.L. Cutts, M.J.P. Welland); **Doubleday, Paul A.**, Statoil (UK), London (J. Skogseid, L.A. Atterton, M.J. Cohen)

India
Basu, Pinaki, ONGC, Dehradun (B.S. Dhillon, S.K. Biswal, M. Shukla); **Mishra, Sumit**, Cairn Energy India, Gurgaon (S. Mukherjee, A.P. Singh, S. Sarkar)

Italy
Tropeano, Marcello, Universita di Bari, Potenza (B.U. Haq, C. Doglioni, W. Cavazza)

Korea
Lee, Gwang Hoon, Pukyong National University, Busan (J.J. Lambiase, J.D. Pigott, P. Weimer)

Malaysia
Madon, Mazlan, Petronas Research, Kuala Lumpur (A. Van Vliet, W. Kampschuur, A. Mohd Salih)

Morocco
Lahsini, Salim, ONHYM, Rabat (H. Jabour, S. Didi, H. Jemjami)

Netherlands
de Jager, Jan, Shell, Rijswijk (H. Darman, E. Goodwin, H. Doust)

Nigeria
Omolaiye, Gabriel Efomeh, Mosunmolu Limited, Lagos (A.A. Adesida, O.A. Olawoki, M.I. Oladapo)

People's Republic of China
Bai, Guo Ping, China University of Petroleum, Beijing, (S.E. Laubach, G.M. Gillis, Z. Jin)

Scotland
Hamilton, Charlotte Anne, Maersk Oil, Aberdeen (D.R. Cook, C.K. Clausen, H. Cromie)

Certification

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

Petroleum Geologist

California
John Thomas Coleman, Chevron, San Ramon (G. Cable, S. Patti, S. Shirley)

Petroleum Geophysicist

Colorado
James K. Campbell, Fusion Petroleum Technologies, Boulder (K. Fredricks, W. Kessinger, P. Weimer)

Paramoure

from page 56

"I have used podcasting in my classrooms for the last three years and witnessed the power of technology on the attitudes and success of all student types," she said.

On that technology front, she says she will help repay the generosity of AAPG by developing more Earth science podcast episodes to help students build understanding of science content as well as encourage them to consider the many career paths available.

When Like Became Love

Like the students she's teaching, Paramoure needed some extra incentive to even get into the field.

"I started out working toward a teaching degree in reading," she said, but then the state of Texas offered a "Teach for Texas Grant" for those willing to relocate to high needs areas. It was in one of those communities that Paramoure decided to give science a try.

But it was just a try – the love affair came later. Like any relationship, it took, and takes, work.

"I have been privileged to be part of the Texas Regional Collaboratives for Excellence in Science and Math for four years," she said. "Through this organization I attend 105 hours of professional development each year, and I have been exposed to excellent science content workshops as well as pedagogy training.

"The TRC awarded me a podcasting specialist grant to create science podcasts for middle school science," she said, adding that there "I have witnessed first-hand the excitement."

Paramoure is aware of the conventional wisdom that American schools are falling behind their European and Asian counterparts, but says the issue is complicated.

"It is hard to compare the various education systems," she commented. "Schools in the United States do not have the same requirements as many foreign schools."

"I have 45 minutes a day to create an engaging environment that balances hands-on and minds-on experiences," she said. "I would love to have more!"

Hearts and Minds

More to the point, she says, "science education is vital! Knowledge is power and in order for our society to make powerful decisions concerning problems facing our nation and world, we need to be well informed."

And that information is rooted, she believes, in the sciences.

"Further, science is the backbone for improving technologies that will be needed to solve issues such as energy production, climate and resource utilization."

Before the information can be harnessed – before you can convince a 14-year-old about the wonders of space, for example – Paramoure feels you have to convince them of something else.

"We need to capture the hearts and minds of our youth so they will be inspired to pursue" fields in science, technology, engineering and math to meet the challenges the new world presents.

Part of it, she says, is giving back to students something they always had: possibilities.

She says part of her joy is being able to rekindle students' "I can do anything" attitude.

"I am invigorated when I see a light turn on," she said.

In this way, she says, students enter high school knowing "you must believe to achieve" – and then, "get to work to make it happen!"

CLASSIFIEDADS

POSITIONS AVAILABLE

The Department of Geosciences at Fort Hays State University invites applications for a tenure-track position as Assistant Professor in Petroleum Geology. Responsibilities include teaching undergraduate and graduate courses, overseeing labs, student recruitment and advising, supervising student research and theses, and grant writing and research. PhD required; abd considered. Starting date August 1, 2010. For additional details see: www.fhsu.edu/geo and www.fhsu.edu/faculty-and-staff/employment-and-benefits/.

Screening of applications will begin immediately and continue until the position is filled. Salary depends on qualifications. Final candidate must consent to and successfully complete a criminal background check.

Send letter of application, curriculum vitae, statements of teaching and research philosophies, transcripts, three letters of reference, and visa status (if applicable) to: Dr. Kenneth R. Neuhauser, Search Committee Chair, Department of Geosciences, Fort Hays State University, 600 Park Street, Hays, KS 67601.

For questions email kneuhaus@fhsu.edu or call 785-628-5349.

* *

Petroleum Exploration Geologist
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Tulsa, OK

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DIRECTOR'S CORNER

Reaching Our Olympic-Size Goal

By RICK FRITZ

I enjoyed watching the recent Winter Olympics and all of the athletes from around the world. They really are quite amazing, and I love to watch the little nuances that make a champion.

I also am always amazed at the time differences between first and fourth place – sometimes it's just the difference of a snap of a finger from the top of the podium to leaving without a medal.

I especially enjoyed watching the Canadians and Europeans in "curling." I like the strategy – it's like chess on ice.

* * *

For the past four years we have had an "Olympics" of our own called the AAPG Foundation financial campaign.

It started in 2005, when the AAPG Trustees agreed to initiate a fund-raising campaign to support many of the scientific and educational goals supported by AAPG. In addition there were many opportunities for support of new programs.

At the beginning of the "quiet phase" of the program the AAPG was provided an incredible undesignated lead gift from Austin and Marta Weeks of $10 million.

Larry Funkhouser and Jack Threet lead the financial campaign committee. Bill Fisher chairs the Foundation Trustees – John Amoruso, Bill Barrett, Marlan Downey, Jim Gibbs and Bill Gipson – who are a key part of leading this program.


FRITZ

> "This is a great opportunity to extend the science and influence of your profession. It is a Herculean effort and we need everyone's support."

As a result of the financial campaign the Foundation began to double the Weeks gift. At the end of the quiet phase, Boone Pickens agreed to provide a gift of up to $9.4 million.

These generous campaign gifts already are impacting our abilities to advance support in the geosciences through new initiatives, such as:

- The **Weeks Endowment**, which has supported earth science educational programs for K-12 through university students to professionals.
- The **T. Boone Pickens Digital GIS Fund**, which established a joint consortium for AAPG/Oklahoma State University Geoscience and Geographic Information Systems. This program has funded geoscience research plus numerous GIS projects.
- The **John Bookout K-12 Initiative**, designed to provide earth science training at the Ellison Miles Geotechnology Institute for K-12 teachers. To date over 350 teachers have been trained.
- The **AAPG/Holland Award for Excellence** at Hardin-Simmons University, which has provided high achieving faculty and annual fellowship for professional development and enrichment.

It should be noted that a significant amount of the donations have come from AAPG Trustee Associates. This is a very special group and we thank them for their dedication. Increasingly, we are receiving many donations from the broader section of AAPG members.

There will be numerous announcements at the annual meeting in New Orleans about the AAPG Foundation financial campaign. Currently, we have raised over $27 million.

Please join us at the opening session and the All-Convention Luncheon in New Orleans for announcements about the financial campaign.

* * *

Next year at the annual meeting in Houston we will hold our final fund-raising celebration. Our "Olympic size" goal is to raise $35 million by 2011.

As we move into the final phase of the program we are asking all AAPG members to consider donating to the AAPG Foundation. The AAPG Foundation staff stands ready to help you plan charitable giving including annuities and long term estate planning.

This is a great opportunity to extend the science and influence of your profession. It is a Herculean effort and we need everyone's support.

Please join us as we Meet Challenges to Assure Success for the future.

DIVISIONS' REPORT

Imagine a broadened skill set

CVD, Meetings and Events on DPA Calendar

By PAUL W. BRITT, DPA President

As the AAPG annual meeting draws near, the DPA annual council meeting also marks the last meeting for the year.

While it has been a fairly busy year – updating AAPG statements and the issuing of a new Onshore Exploration statement, participating in the fall Congressional Visit Days, hosting DPA events at the Eastern, Gulf Coast and Mid-Continent Section meetings and more – there is still quite a bit of DPA business remaining this year.

- May 10-12 will be the next **Geo Congressional Visit Days** (GeoCVD), where AAPG members visit Capitol Hill. They meet with members of key energy-related committees, government agencies and their own Congressional representatives, senators and key staff people, to present geoscience materials and DPA statements for scientific support in the decision-making of geological related issues.
- The DPA will be hosting a breakfast May 18 at the **Southwest Section** meeting in Dallas, featuring David Curtiss, director of AAPG's GEO-DC office, as the speaker. He will be catching us up on the current status of legislation in Washington as well a discussing the general function of the GEO-DC office.


BRITT

> "While it has been a fairly busy year ... there is still quite a bit of DPA business remaining this year."

- Following a successful **town hall** meeting in Midland this time last year, the DPA is hosting another one in **Oklahoma City** on May 18, again featuring Curtiss. It will be an opportunity to discuss topics that concern the membership.

And then there are all the DPA activities planned for the annual meeting in New Orleans.

DPA Luncheon

The Ethics, Professionalism and Process of AAPG Statements - How does an international scientific professional society like AAPG stay true to its many self imposed goals and policies, such as to educate, while not taking political stands? Moderators are Jeff Jones and Carl Smith and the panelists are David Curtiss, John Dolson, Lynn Hughes, Pete Rose, Ray Thomasson and Scott Tinker.

This topic will be offered as an extended Forum so that the discussion may cover more detail in the afternoon (see below).

DPA Forums

- The **Discovery Thinking** Forum, an AAPG/DPA/HOPG sponsored forum, starting at 1:25 p.m. Monday, April 12, will be the third presentation of the AAPG 100th Anniversary Committee's program recognizing "100 Who Made a Difference." The New Orleans forum will feature six invited speakers who have made a difference – John Amoruso, Marv Brittenham, Gregg Robertson, Bill Zagorski, Mike Forrest and Dan Smith. (See related story, page 40.)
- The **Ethics, Professionalism and Process of AAPG Statements** panel-forum will begin at 2 p.m. Tuesday, April 13, built on the question, how does an international scientific professional society like AAPG stay true to its many self imposed goals and policies, such as to educate, while not taking political stands?

Moderators are Jeff Jones and Carl Smith and the panelists are David Curtiss, John Dolson, Lynn Hughes, Pete Rose, Ray Thomasson and Scott Tinker.

DPA Short Courses

- **Reservoir Engineering for Geologists**, taught by Stephen Norris, (J-W Operating Company, Centennial, Colo.). This course is designed for geologists (and others) who wish to have a basic understanding of common reservoir engineering methods and practices.
- **Quality Control for Subsurface Maps (QLTs)**, taught by Dan Tearpock, (Subsurface Consultants & Associates, Houston). This course addresses the need for a systematic approach for quickly screening interpretations, maps, prospects and potential resources or reserves, and identifying fundamental interpretation, mapping and estimating errors.

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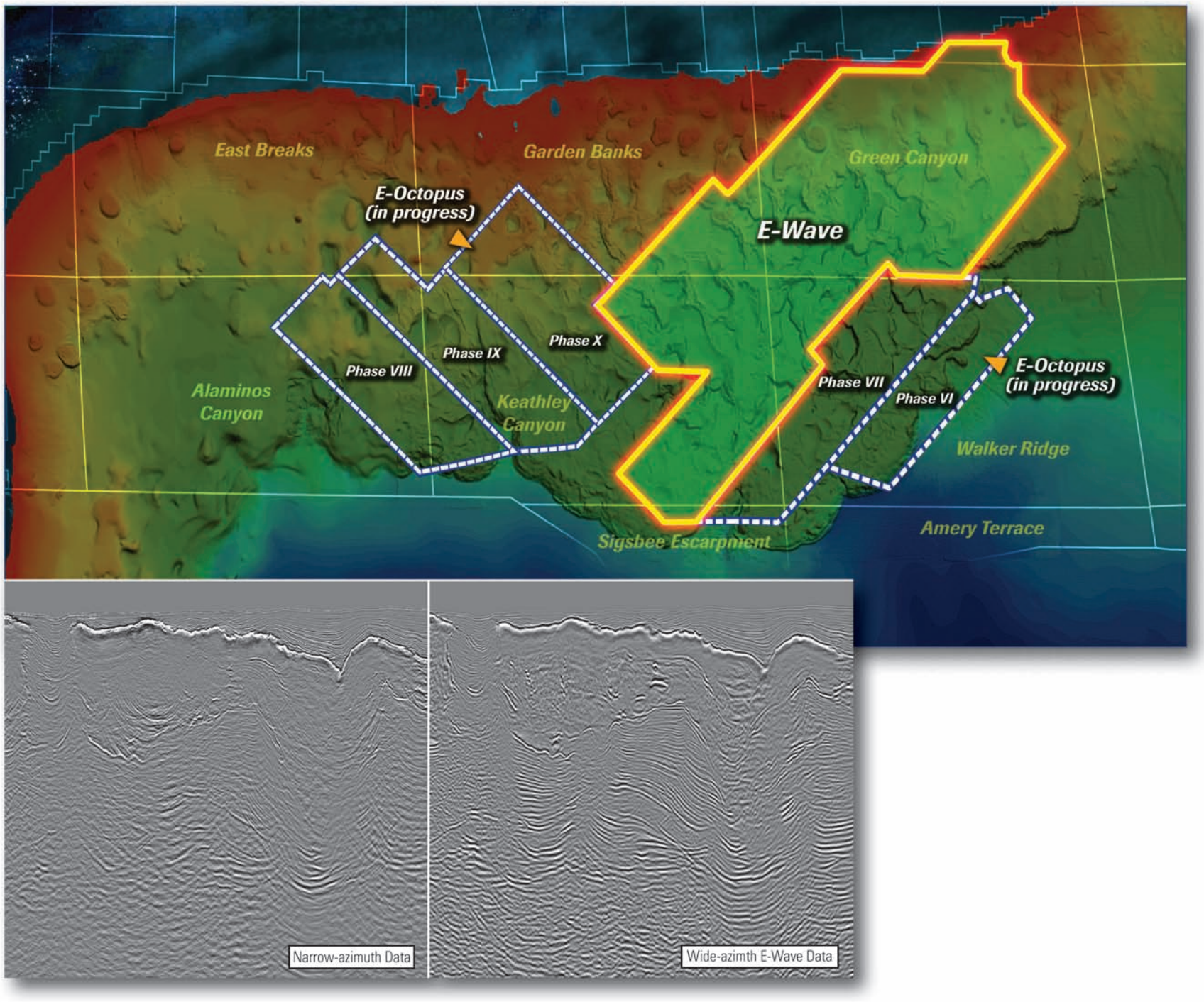

E-Wave advanced imaging is now under way in the Gulf of Mexico.

The WesternGeco E-Wave advanced imaging project will apply the data-driven velocity modeling technique of full-waveform inversion plus tilted transverse isotropic reverse-time migration to produce improved images in and below areas of great structural and velocity complexity. The E-Wave project will also incorporate true-azimuth 3D GSMP* general surface multiple prediction processing over phases I–V of the E-Octopus wide-azimuth surveys.

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