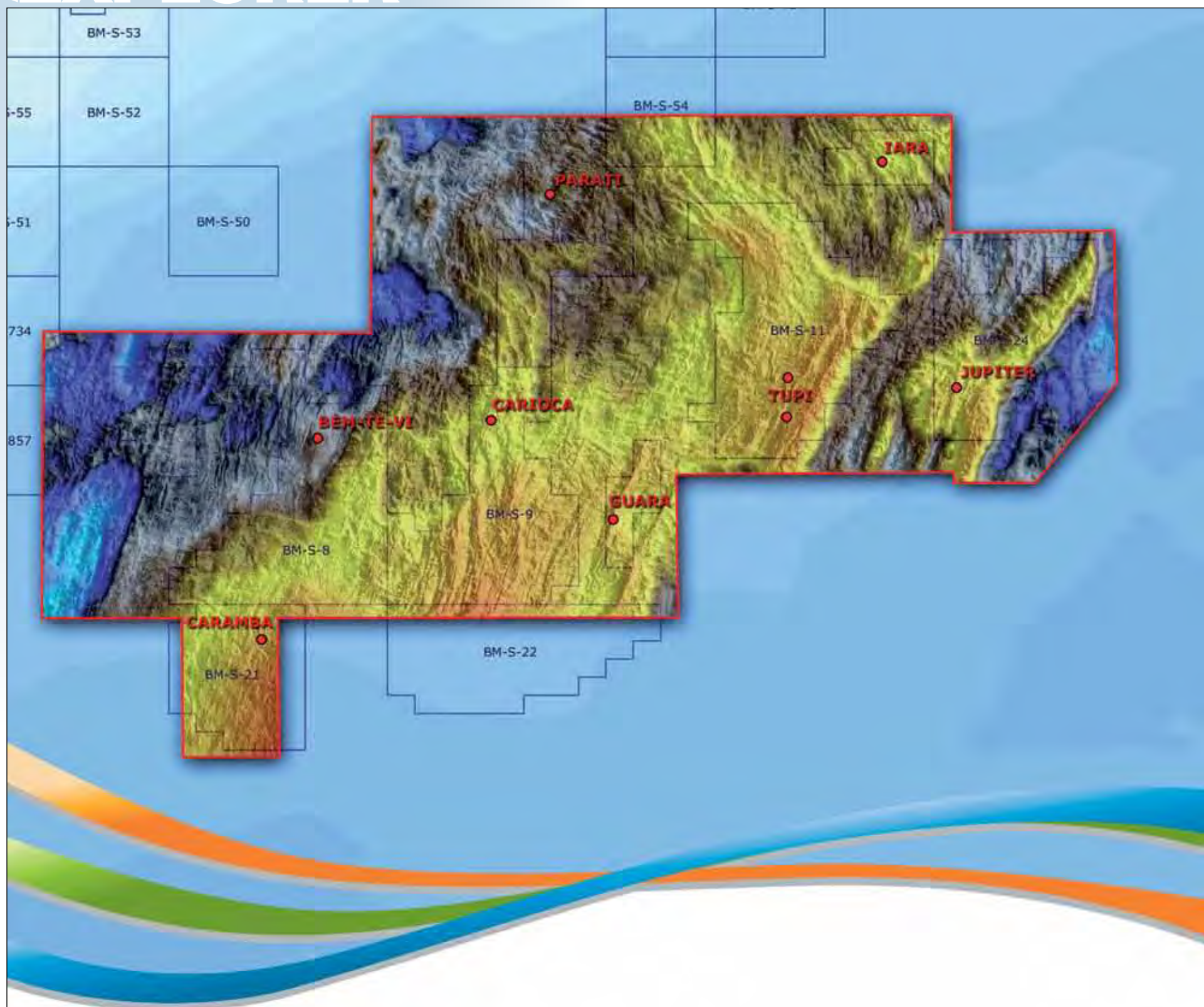


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JULY 2010

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PRESIDENT'S COLUMN

Leading With an Eye to the Future

By DAVID G. RENSINK

In seven years AAPG will celebrate its 100th anniversary – and I believe the actions AAPG takes in the next seven years will be pivotal in preparing AAPG for its second 100 years.

It may seem ridiculous to think we can prepare such a long-range plan when there is no guarantee that the oil industry still will be relevant to society in 2117. It is certainly true the world and the oil and gas industry will change in unimaginable ways in the next 100 years, just as it has in the past 100 years.

Change is inevitable, but that does not mean that it cannot be managed.

* * *

There has been one constant for the last 93 years, and it likely will persist for the next 100 years – AAPG is first and foremost about the science of petroleum geology. We disseminate it through our publications and we archive it in Datapages, GIS-Udril and *Search and Discovery*. The underlying principles of petroleum geology have not changed dramatically in the last 40 years, but our understanding and application of those principles has improved greatly. It is the improvement in the tools we use to apply those principles to explore for and develop oil and gas reserves that has been truly incredible. Forty years ago, the most valuable tool a geologist could possess – besides a Brunton compass – was the ability to visualize in three dimensions. The ability to visualize a geologic interpretation in 3-D is not as important as it once was because a computer can generate it for you.

No matter how far computer



RENSINK

technology has advanced in recent years, nor how far it will advance in the future, there never will be a substitute for the geoscientist who is able to assimilate data from multiple sources and generate a rational interpretation of the subsurface. That geoscientist needs AAPG, and we need that geoscientist. Although the medium will change, the publication of the science will continue to be the most

There never will be a substitute for the geoscientist who is able to assimilate data from multiple sources and generate a rational interpretation of the subsurface.

valuable service AAPG provides to its membership.

Our publications give us credibility, and they have made us what we are. However, an organization can only last as long as it is financially sound. We have been blessed with very good financial stewardship from members and staff. AAPG has grown into a complex, \$18 million per year enterprise. There is

nothing inherently wrong with complexity, but it can make an organization difficult to manage. Our ability to further the science of petroleum geology and our continued financial health are inextricably linked.

One of the changes we can predict is that our membership will continue to grow outside the United States. At the growth rates we have experienced in the last 10 years, more than half our members will live in the international regions in less than 20 years. We are developing a strategy that will encourage and accommodate that growth – but in doing so, we do not want to marginalize the U.S. members who have long been and will continue to be an integral part of AAPG. We are a global industry, and the globalization of AAPG is inevitable and desirable.

At the time AAPG was formed in 1917, the number of automobiles in the world was measured in the millions. Today they are measured in the hundreds of millions. Approximately 75 percent of the crude oil consumed in the United States today is used for transportation. That compares with approximately 61 percent worldwide. Until we find a viable alternative to the internal combustion engine, crude oil will continue to be a significant part of the world's energy picture.

AAPG members will be there, leading the search for new reserves – just as they have for the past 93 years.

Candidate Slate Announced

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

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

The president-elect will serve in that capacity for one year and will be AAPG president in 2012-13. The vice president-Regions and secretary serve two-year terms. Ballots will be mailed in spring 2011. The slate is:

President-Elect

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

Vice President-Regions

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

Secretary

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

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Takakkaw Falls, located in Canada's Yoho National Park.

REGULAR DEPARTMENTS

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ON THE COVER:

These hikers are on their way to Mount Wapta (center) and Fossil Ridge in Canada's beautiful and geologically significant Yoho National Park, site of the famed Burgess Shale. It's also the site of one of 16 field trips planned in conjunction with the upcoming AAPG International Conference and Exhibition, set Sept. 12-15 in nearby Calgary, Canada. For more meeting information see page 30, or go online to www.aapg.org/Calgary.

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Satellite Detection and Characterization of Natural Oil Seeps using RADARSAT-1 Data in Santos, Espírito Santo, Sergipe-Alagoas and Pernambuco-Paraíba Basins, Brazil.

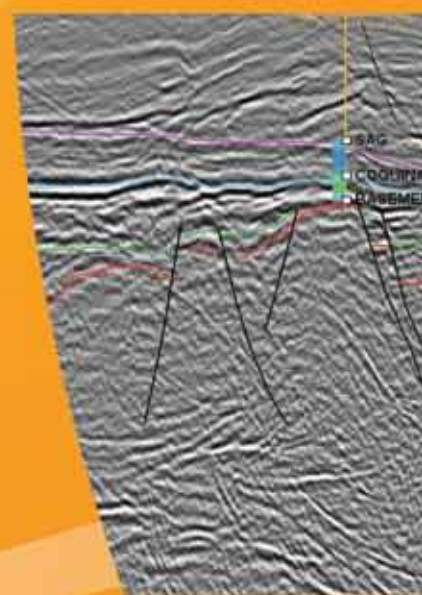
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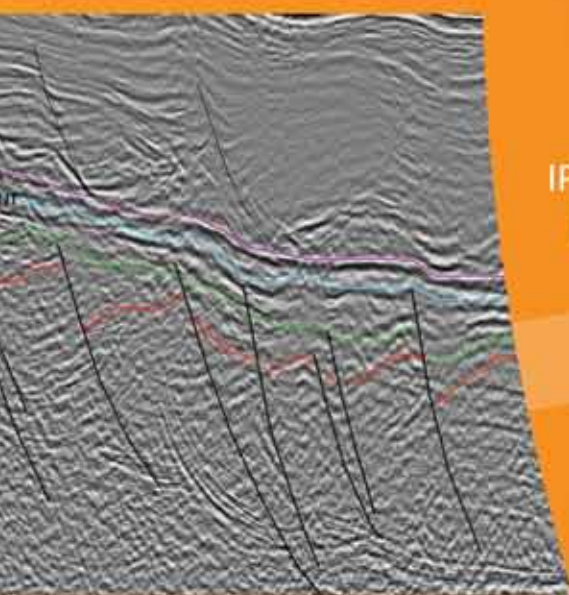
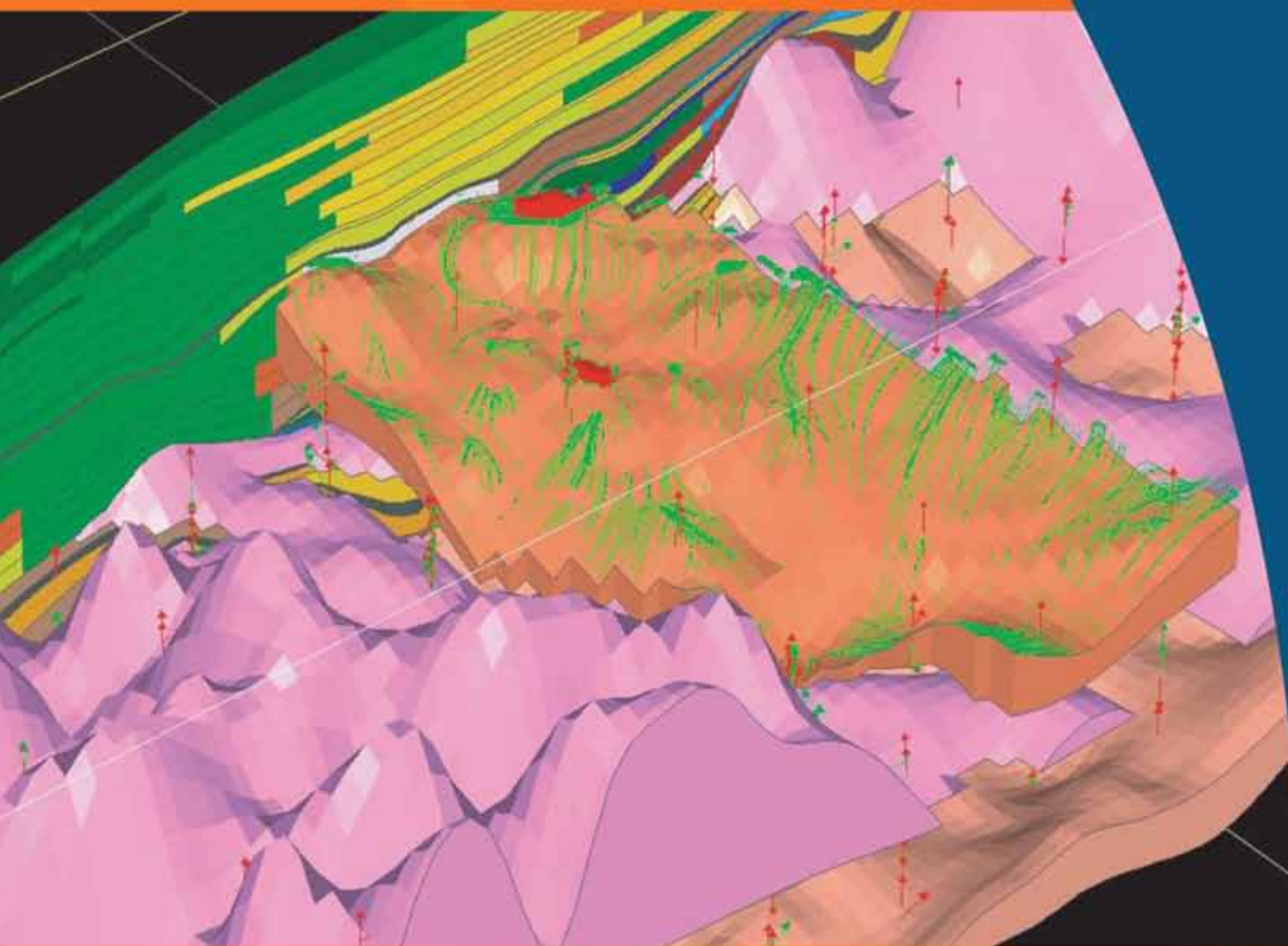
Petroleum System Summary of Brazilian Offshore Basins

Temperature of Petroleum Formation from Kinetic Properties of Oils from Santos, Campos and Espírito Santo Basins, Brazil.

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Rensink Takes Helm of AAPG

David G. Rensink, a consulting geologist in Houston, has assumed the presidency of AAPG on July 1.

A Minnesota native, Rensink retired in 2009 as senior geological adviser for Apache Corp.

He previously has served as offshore exploration manager for Pacific Enterprise; vice president-offshore for both Total Minnetone and Texas Gas Exploration/CSX; and was offshore exploration manager for C&K Production. He also held positions with Ocean Production and Shell.

He received a bachelor's in geology from the University of Minnesota and a master's in geology from the University of Oklahoma.

Joining Rensink on the Executive Committee is **Paul Weimer**, of the University of Colorado, who recently was voted president-elect.

Weimer is professor, Bruce D. Benson Endowed Chair, University of Colorado (Boulder) and is director of the Energy and Minerals Applied Research Center. He also is a consulting geologist, and he

will serve as AAPG president in 2011-12.

His father, Robert J. Weimer, professor emeritus at the Colorado School of Mines, served as AAPG president in 1991-92.

Others elected to the 2010-11 Executive Committee are:

□ Vice president-Sections – **Marvin D. Brittenham**, EnCana Oil & Gas (USA), Denver.

□ Treasurer – **James S. McGhay**, Mid-Con Energy, Tulsa.


□ Editor – **Stephen E. Laubach**, Bureau of Economic Geology, University of Texas at Austin.

Both the vice president-Sections and treasurer will serve for two years, and the elected editor serves for three years.

Remaining on the committee for the final year of their terms are:

□ Vice president-Regions – **Alfredo E. Guzmán**, consultant, Veracruz, Mexico.

□ Secretary – **William S. Houston**, with PTTEP, Bangkok, Thailand.

Also on the new committee is **David H. Hawk**, a consultant in Boise, Idaho, who assumed the chairmanship of the AAPG House of Delegates. 

Advisory Council Members Announced for 2010-11

Members of the 2010-11 AAPG Advisory Council are:

□ John C. Lorenz (chair), Edgewood, N.M.

□ Scott W. Tinker, Austin, Texas.

□ Willard R. Green, Midland, Texas.

□ Michael D. Campbell (president-EMD), Houston.

□ Mary K. Harris (president-DEG), North Augusta, S.C.

□ Daniel J. Tearpock (president-DPA), Houston.

□ Stephen A. Sonnenberg (immediate past chair-HoD), Golden, Colo.

□ Kurt E. Neher (Pacific Section), Bakersfield, Calif.

□ Donna S. Anderson (Rocky Mountain Section), Golden, Colo.

□ David C. Harris (Eastern Section), Lexington, Ky.

□ Mary E. Broussard (Gulf Coast Section), Lafayette, La.

□ Denise M. Stone (Gulf Coast Section), Houston.

□ W.C. "Bill" Stephens (Southwest Section), Wichita Falls, Texas.

□ Leonard C. Dionisio Jr. (Mid-Continent Section), Oklahoma City.

□ Jean R. Gerard (Europe Region), Madrid, Spain.

□ John R. Hogg (Canada Region), Calgary, Canada.

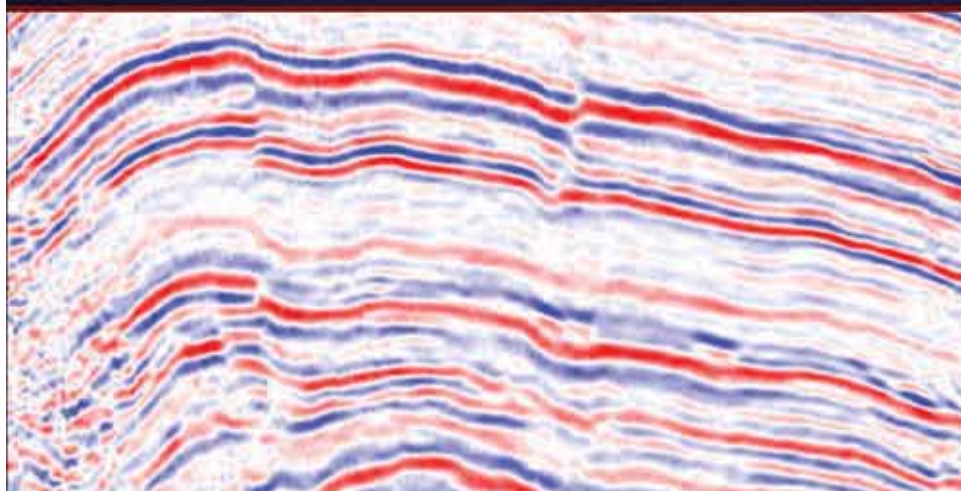
□ Joseph J. Lambiase (Asia/Pacific Region), Bangkok, Thailand.

□ Joseph E. Ejedawe (Africa Region), Houston.

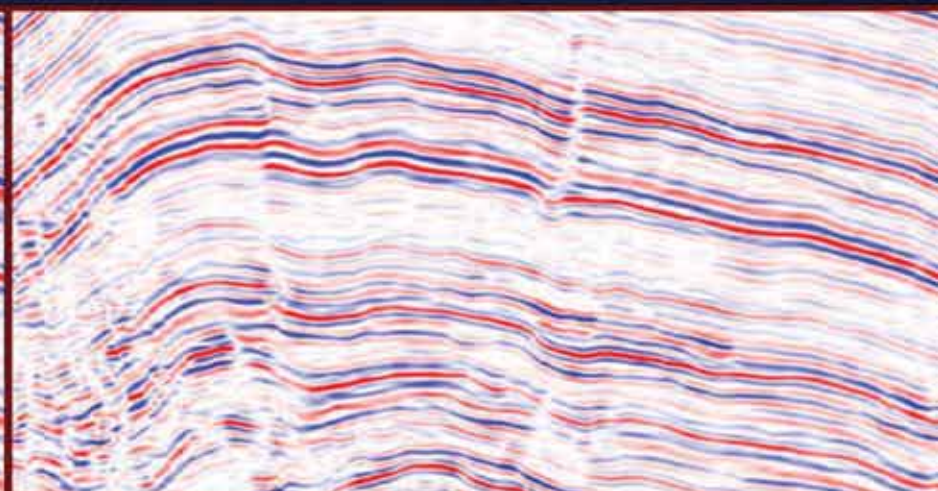
□ Fowzia Hussien Abdullah (Middle East Region), Safat, Kuwait.

The representative for the Latin America Region will be named at a later date.

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Research Getting Unconventional Boost

By DAVID BROWN, EXPLORER Correspondent

Geoscience research is undergoing a renaissance, driven by favorable crude oil prices and the development of unconventional resources.

Research in geochemistry, especially, now rivals the recent period of significant advances in geophysics – today's geochemists help define shale gas plays, analyze hydrocarbon sourcing and make important contributions to basin and reservoir analysis.

The effort to develop new types of oil production and facilitate improved oil recovery also has produced geoscience research relevant to conventional oil, heavy crude, shale oil and tar sands.

Reflecting the broad range of current work, recent AAPG Hedberg Research Conferences have examined "Applications of Reservoir Fluid Geochemistry," "Geological Carbon Sequestration" and "Basin and Petroleum System Modeling."

Upcoming Hedbergs will focus on assessment of shale resource plays, evaluation of carbonate reservoirs and enhanced geothermal systems.

Ken Peters, scientific adviser for Schlumberger Information Solutions in Mill Valley, Calif., serves as a chair of AAPG's Research Committee.

"There's a revolution going on in geology that has revitalized the exploration and development of petroleum resources," he said, relating the recent upsurge in research to the development of shale gas and other unconventional resources.



PETERS

"Just a few years ago in the United States we were talking about importing gas," he noted. "Unconventional resources have the potential to drastically alter the global energy picture."

Spotlight On ...

Peters identified several current areas of interest in research:

► Diamondoids and the extent of secondary oil cracking.

"Everybody is scrambling right now to do geochemical analyses," Peters said. "One thing that has captured the attention of a lot of people in the industry is the diamondoids."

"Diamondoids," also called nanodiamonds, refers to variants of adamantane, the smallest molecular structure recognizable as a diamond. Put simply, diamondoids are three-dimensionally fused, carbon cage molecules having the structure of a diamond crystal lattice.

Much of the current research addresses challenges faced by the industry, producing work that is more practical than purely theoretical.

"Adamantane is the smallest pseudo-homolog in the series," Peters said. "It's got 10 carbon atoms and 16 hydrogen atoms, and it looks like a little ball."

Diamondoids occur naturally in petroleum, and they have become an important indicator of oil maturity while helping to identify deeper crude sources, according to Peters. They also offer the potential to directly measure the extent of oil-to-gas cracking, which could greatly enhance our ability to identify and develop the most prolific zones in gas shales.

When younger crude is mixed with deeper, more mature oil, the deeper crude can be difficult to identify. Geochemists use diamondoids to gauge cracking and spot the likelihood of deeper sourcing.

"Usually, the deep source is so mature that there are no biomarkers – they're gone. They've all been cracked," Peters said. "Once you start cracking these things into gas, the diamondoids start piling up."

Peters said geochemical analysis using diamondoids is a way to determine ultra-

deep sourcing in oils.

"All the majors are doing piston core analysis all over the world," he noted. "Diamondoids tell them how mature the oils are and if there's a deeper source."

"That turns out to be critical in places like Saudi Arabia, where they have that deep Silurian source," he added. "It's also critical for offshore Brazil."

► Silica diagenesis and stratigraphic traps.

Studies in silica diagenesis deal partly with reduction in porosity as diatomite or opal-A transitions to opal-CT and then quartz.

"The funny thing is the opal-CT has low porosity but pretty good permeability. It's a diagenetic trap. And in a diagenetic trap you can trap hydrocarbons on a monocline," Peters observed.

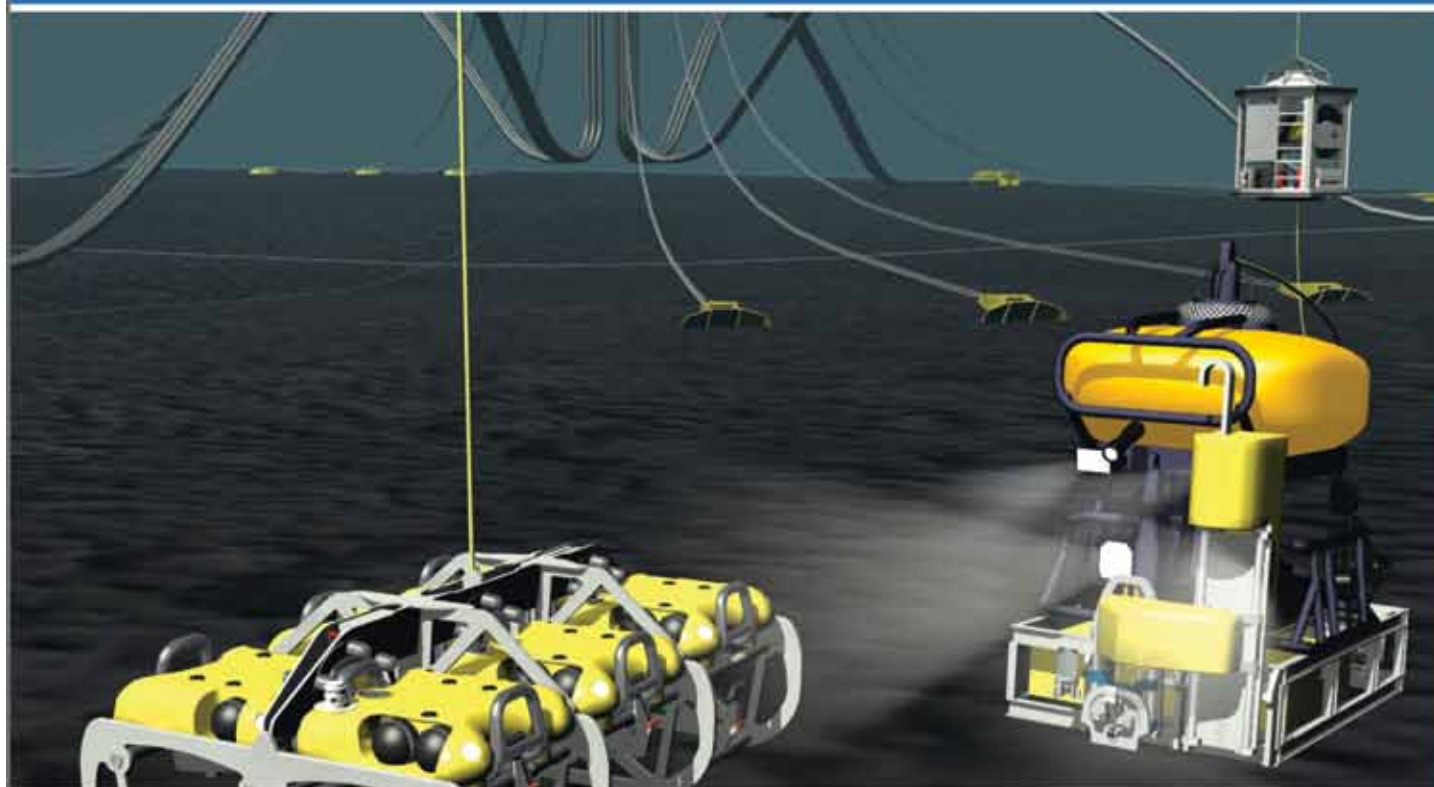
"The question is similar to that in gas shales – where, for example, in a tight source rock can you expect to produce oil?"

Peters draws on his past experience in industry, government and academia. He now serves as a consulting professor for Stanford University's Basin and Petroleum System Modeling Group, where students are working on various topics, including silica diagenesis research.

"We're going to be adding this into a module in our basin-modeling program," he said. "The kinetics can be used to assess depth better than just guessing. These

See Research, page 10

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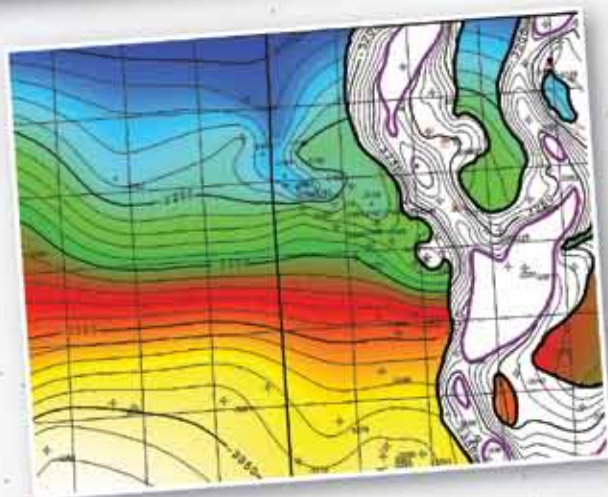
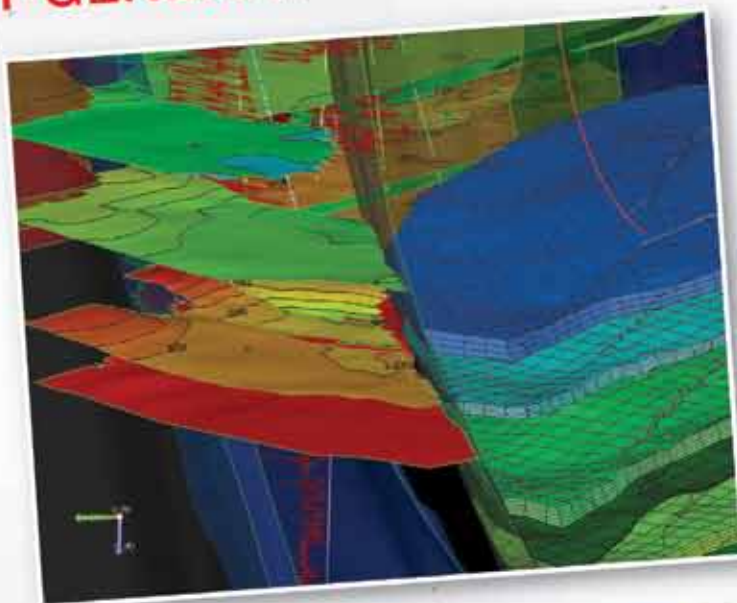
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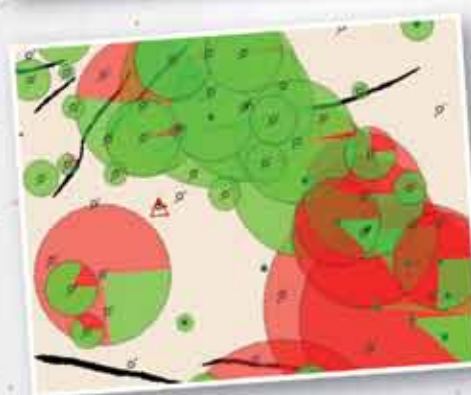
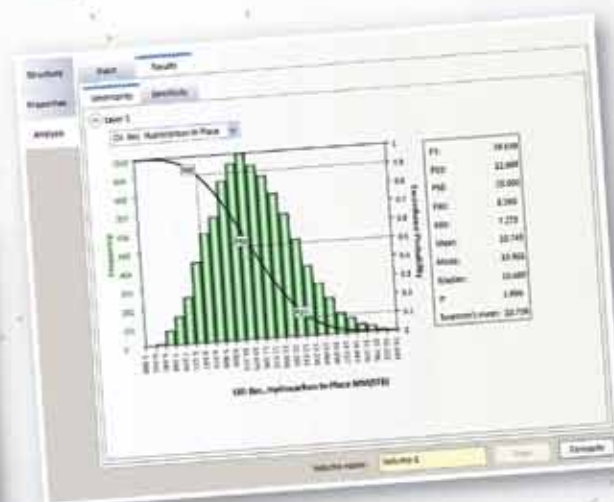


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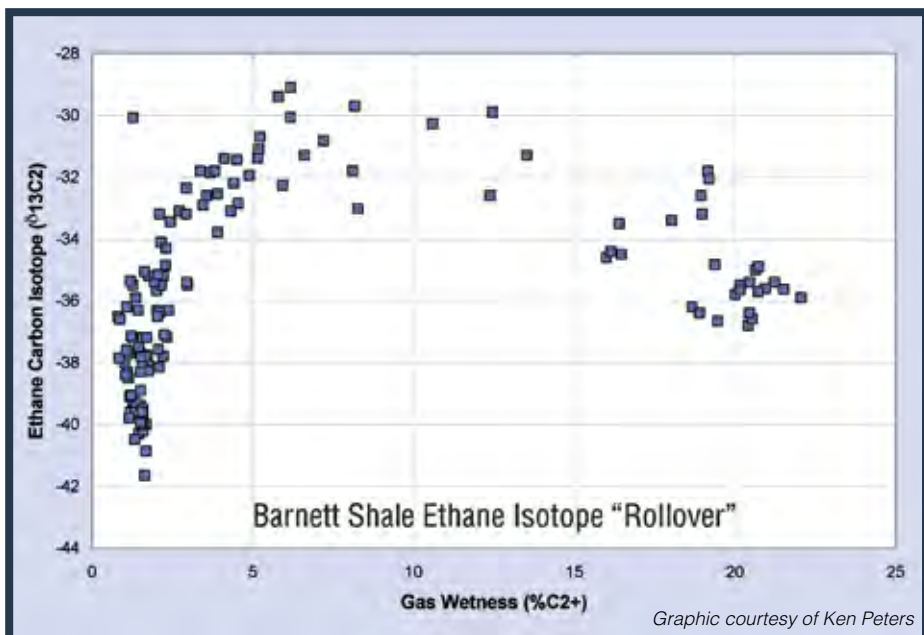
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Research from page 8

rocks are all over the Pacific Rim – the Japanese are very interested."

► Carbon isotope rollover in gas shales.

Isotope rollover is an emerging research area of special interest in shale gas production. Rollover seems to occur at a vitrinite reflectance of about 1.5 percent Ro, said Kevin Ferworn, vice president at GeoMark Research in Houston.

The isotope rollover effect has been identified in the Barnett, Fayetteville, Haynesville, Woodford and Appalachian shale plays, as well as in the Horn River Basin in Canada.

"Ethane and propane and CO₂, which normally get isotopically heavier (enriched in ¹³C) with increasing maturity, all get lighter

(enriched in ¹²C) at about this 1.5 percent Ro point," Ferworn noted.

"Also, the wetness of the gas drops along with it," he said. "Sometimes this happens within 10 feet as you go through a formation."

Conversely, the pressure gradient increases. Geochemists can use isotope rollover to identify the most promising – that is, the most gas-productive – areas in a shale gas play.

From a scientific viewpoint, one interesting thing about the reversal in the isotope trend line is that it shouldn't happen, and no one seems to be sure why it does.

Ferworn said an early theory posited the rollover resulted from cracking as gas stayed inside the shales at high temperature and pressure, but the type of ¹²C-¹³C bond-breaking seen did not support that idea.

A more recent theory holds the rollover effect may be a natural steam reforming reaction, where hydrocarbons in the presence of water and a ferrous catalyst at 180-200 degrees C undergo a Fischer-Tropsch-like conversion.

"We're still at the theoretical stage," Ferworn said. "The main target for operators is that they get lucky enough to be in a rollover area."

"Whatever the mechanism is that causes this change in isotopes and decrease in wetness, it's something to do with bigger molecules being replaced by more, smaller molecules," he added.

Peters described the isotope rollover as "a little strange," but it seems to work.

"It's fascinating," he said. "To me, it warrants a lot more study. I have some ideas but they're based more on thinking than on experiments."

'The Frontier for Research'

Much of the current research in geoscience directly addresses challenges faced by the industry, producing work that is more practical than purely theoretical.

"A lot of this is flat-out exciting. The funny thing is, a lot of people in academia are not yet aware of this current revolution in geology," Peters said.

Interest in unconventional resources and the higher oil prices have contributed to the recent upsurge in research – but sustained support for long-range research programs can be difficult to secure.

"Industry has always had this problem," he said. "When the industry's doing well, all these universities pop up with things that can be tied back to industry funding. Then when things turn down, most of these projects disappear."

When the oil industry won't commit to long-term research funding, it loses the benefits from research programs that produce their best results over a 10-year period or longer, he noted.

Today's geoscience research is contributing to a better understanding of petroleum systems – basin and petroleum system modeling (BPSM) traces the evolution of sedimentary basins as they fill with sediments that may generate large hydrocarbon accumulations.

Using comprehensive modeling software, BPSM combines geological, geochemical, geophysical, hydrodynamic and thermodynamic data. It draws on dynamic processes that include deposition, faulting, burial, kerogen maturation and multiphase fluid flow.

"In my view, basin and petroleum system modeling is the Grand Central Station of the science right now. All the other research is feeding into it," Peters observed.

"It's the frontier for research," he said, "and 20 years ago people said, 'You can't do it.' We're doing it now." ■



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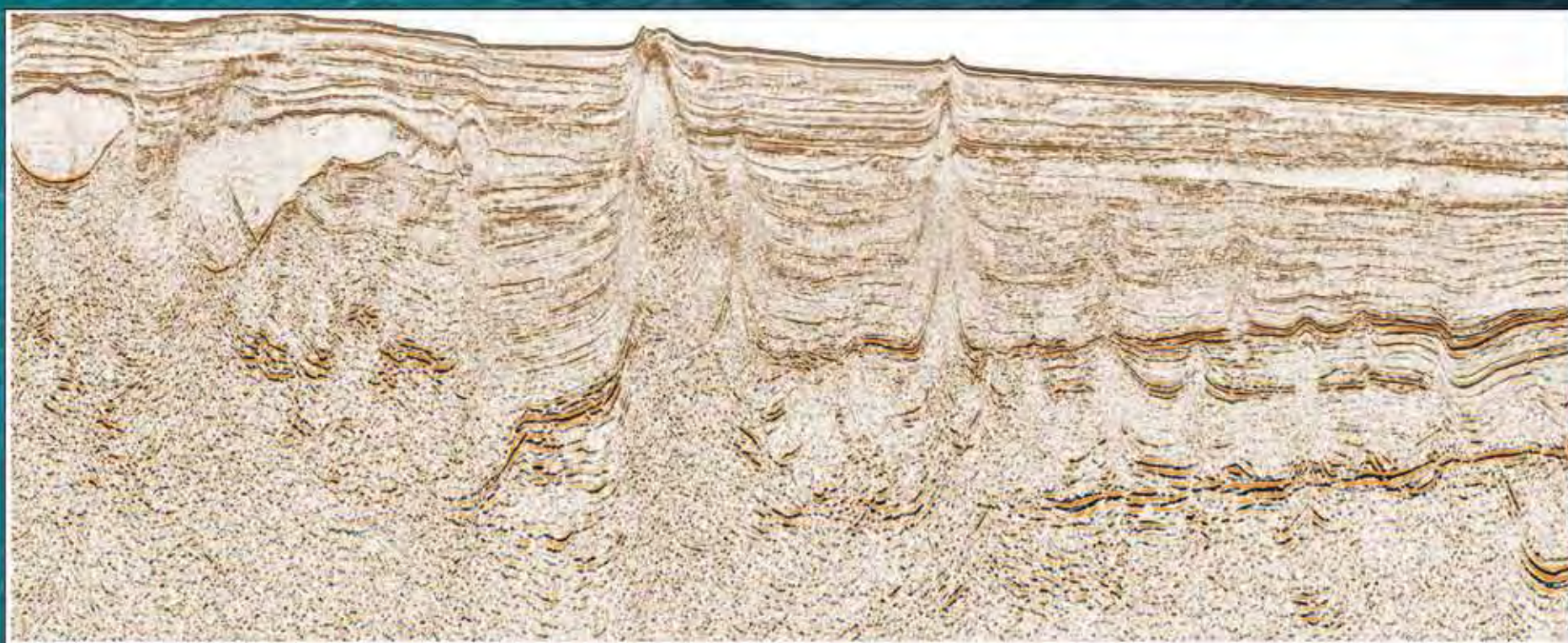
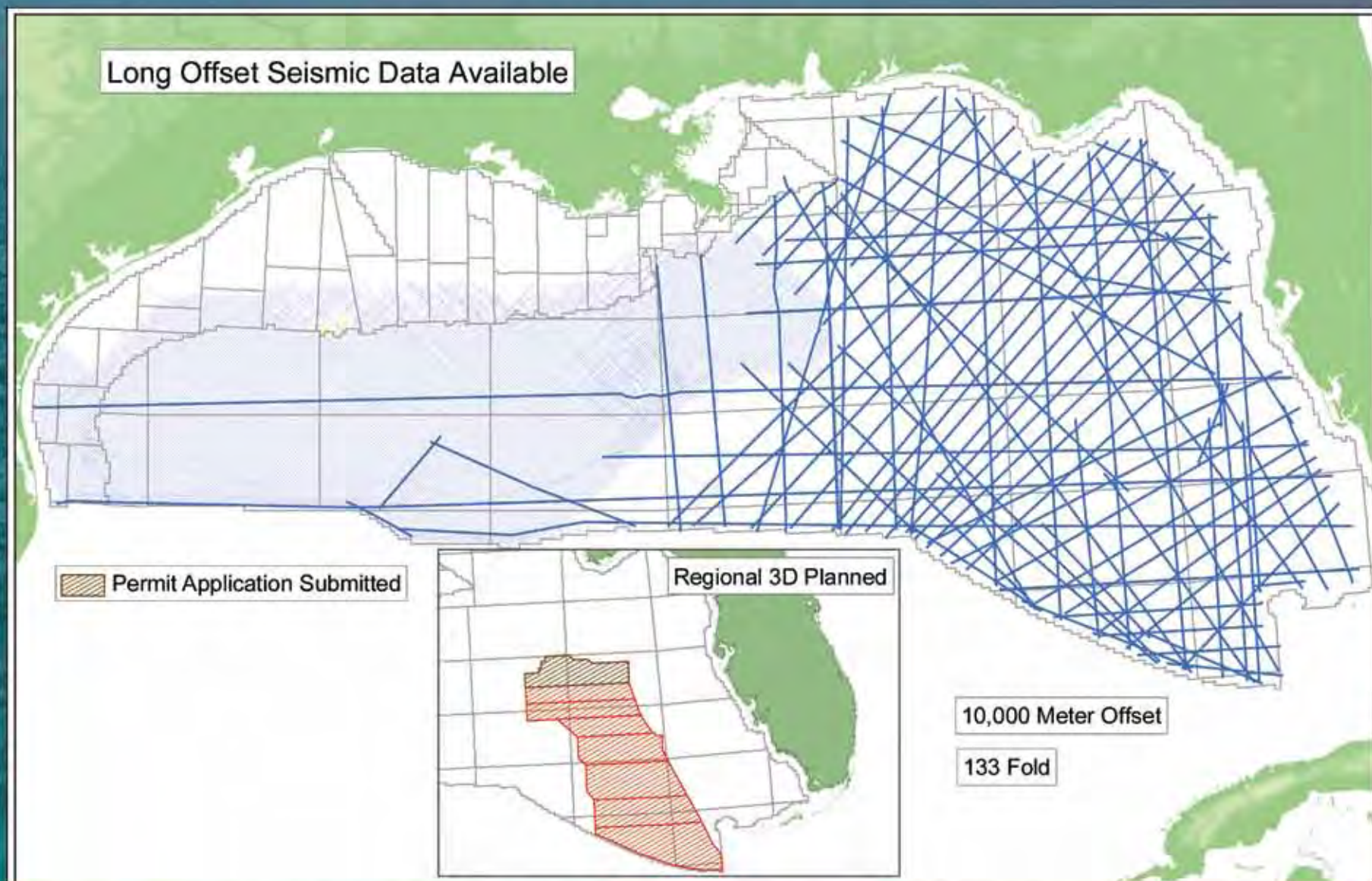
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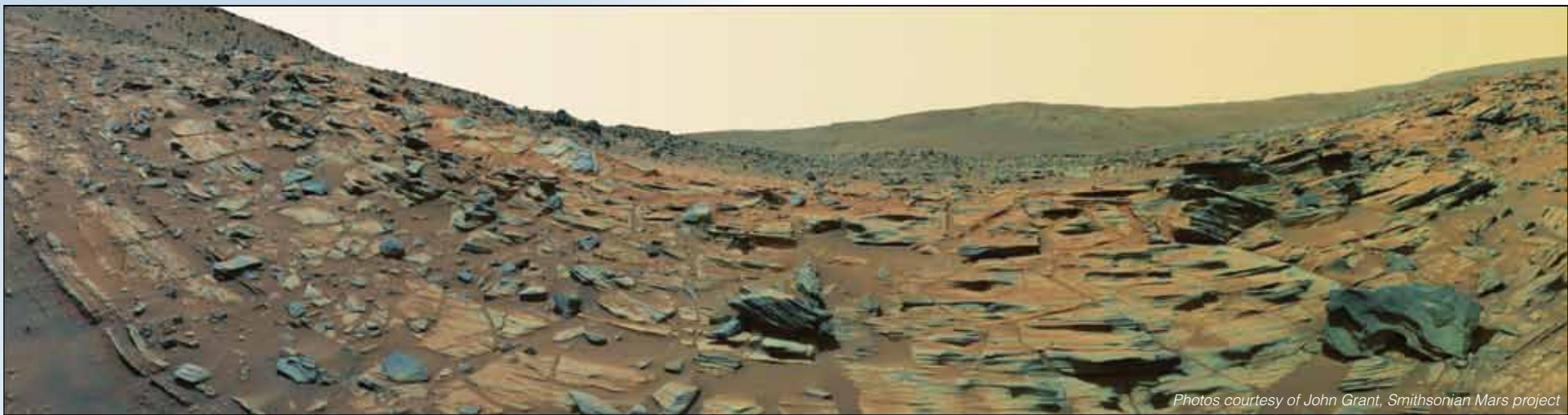


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Photos courtesy of John Grant, Smithsonian Mars project

Rovers probe extraterrestrial processes

Mars: 'Weird Mix of Alien and Familiar ...'

By SUSAN R. EATON, EXPLORER Correspondent

As a planetary field geologist, John Grant gets excited when he completes a 150-meter-long traverse in just one day.

From his office at the Smithsonian Institution's National Air and Space Museum – where Grant analyzes images beamed to Earth from NASA's two Mars Exploration Rovers – he interprets micro- and macro-scale planetary geology on-the-fly. His job is to maximize the science conducted, and to help keep the Mars Exploration Rovers safe while they explore the surface of the Red Planet.

Grant's mission is, indeed, to boldly go where no geologist has gone before.

At the recent AAPG Annual Convention and Exhibition in New Orleans, Grant, chair of the Center for Earth and Planetary Studies at the Smithsonian Institution's National Air and Space Museum, told the EMD and DEG luncheon attendees that sedimentary geologists continue to play a key role in documenting evidence that water existed on Mars in the geological past.

"The geological processes are basically the same (on Earth and Mars), but the manifestations and details are different on Mars," Grant said. "There's some stunning landscapes on Mars, including a weird mix of alien and familiar land forms."

Ever cognizant of the geomorphic term "equifinality" – that different processes can create similar looking features – Grant said:

"You have to keep an open mind in Mars exploration, and think about new ways to test your hypotheses."

The presence of at least ephemeral water on Mars, three to four billion years ago, he said, has been confirmed in sedimentary rock outcrops of fluvial and lacustrine depositional origins. Grant illustrated this point with stunning photos – taken by the Rovers and also from space – of alluvial fans, mass wasting features (caught in motion), cross-bedded sandstones, dunes with tell-tale water ripples and the presence of chalky white evaporites.

"We're seeing things from orbit, on the surface of Mars, that have the pixel space of one square foot, and that's incredible spatial resolution," Grant said. "It looks like there were places in the early history of Mars where there were hundreds of meters of standing water," he added, citing sedimentary outcrops, complete with cross-bedding, which measure up to 150 meters thick.

The Holden Crater, one of Grant's ongoing areas of investigation, contains clay-bearing minerals – by his calculations, the associated water in the Holden Crater may have been some 300 meters deep at one time.

Still Going Strong

In 2004, Spirit and Opportunity, the two Mars Exploration Rovers, were landed on



GRANT

opposite sides of the planet, commencing what was to be a 90-sol ("sol" is a Mars day, which is about 40 minutes longer than an Earth day) scientific mission. Nearly seven years later, in a science project that's exceeded all expectations, the solar powered rovers are still transmitting data back to Earth.

"You design the rovers for the worst case scenario: maximum impact on landing, maximum life and maximum shaking," Grant explained.

Good luck, combined with good design and longevity, have enabled the rovers to traverse unique features on Mars, unlocking the planet's geological

history in the process.

Grant affectionately calls Spirit and Opportunity the "identical twins" that have six-wheels each and are about the size of golf carts. However, the golf cart analogy ends there: the Athena Science Payload of sophisticated remote sensing instrumentation, high definition cameras and rock abrasion tools transform the rovers into travelling field laboratories.

Using HiRISE camera images to create digital elevation models of the surface traversed by the rovers, Grant identifies intriguing geological features that merit further scientific investigation. Working with engineers at the Jet Propulsion Lab (JPL), he helps chart navigational routes – free of hazardous boulders and cliffs – to interesting scientific targets that don't compromise the rovers' safety.

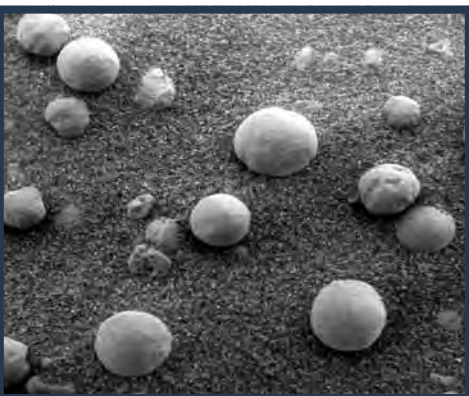
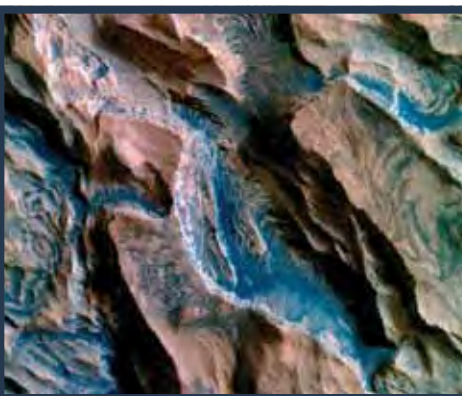
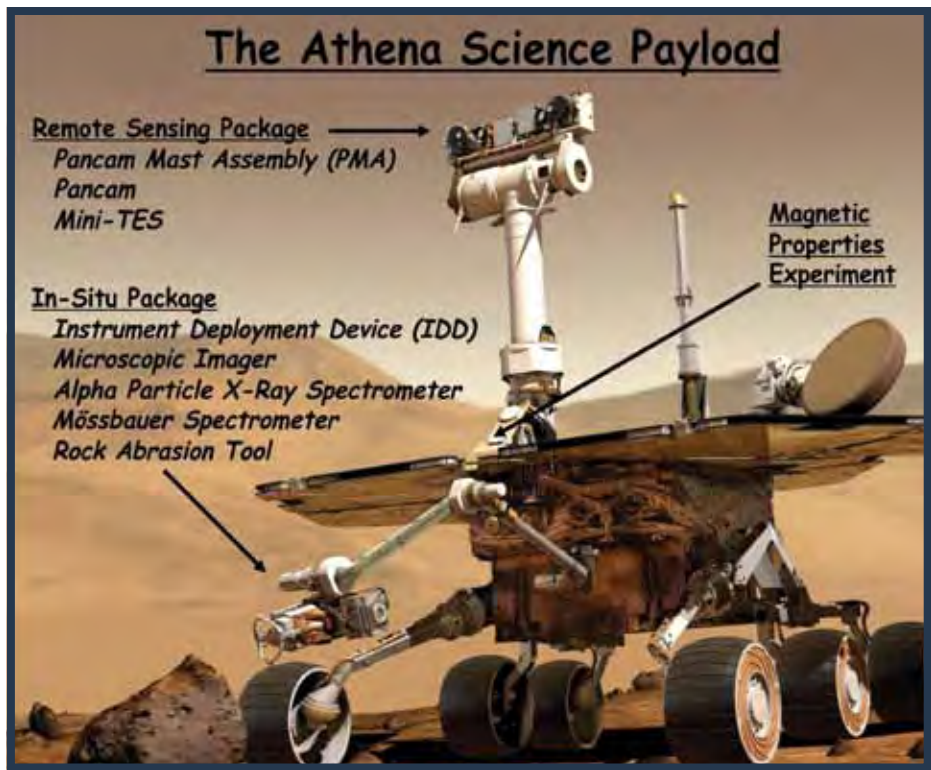
Early on in Opportunity's mission in the Eagle Crater, near an outcrop dubbed "Stone Mountain," the rover photographed layered sedimentary rocks containing "blueberries," spherical concretions that contain hematite. In fact, Grant said, the ground was littered with spherical concretions, weathered from the nearby bedded rocks and somewhat reminiscent of concretions found in the Navajo Sandstone in Utah (May 2005 EXPLORER).

"We traversed to Stone Mountain," he said, "based upon geochemical evidence from the rover's investigations that revealed the existence of hematite, a mineral often associated with water."

Step By Step

Grant described how the rovers have been buffeted by dust devils racing across the Martian surface, often operating on reduced power because their solar panels are covered with dust. Luckily, he said, the passage of subsequent dust devils helps remove the layer of dust occluding the

Continued on next page





Continued from previous page

solar panels.

According to Grant, there are two ways to drive the rovers at JPL:

► Advance "blindly," on a non-threatening track, at a speed of two meters per minute.

► When faced with potentially hazardous obstacles, proceed more slowly and cautiously, at about 10 meters per hour.

One of Spirit's wheels has failed, leaving five functional wheels with one that drags along the ground. However, out of adversity came a serendipitous scientific discovery: As the wayward wheel dragged, it plowed through the ubiquitous oxidized surface, excavating white, silica-rich sediments below.

"We may well have missed that otherwise," Grant mused.

Spirit currently is stuck in soft, fine sediments along the margin of a small, filled-in crater, in an area called the "Rock Garden."

"Statements about the future viability of Spirit may be exaggerated," Grant said, sounding like a proud father defending its offspring. Tilted southward – the sun is currently in the north – Spirit's solar panels are less effective during the southern hemispheric winter.

"Spirit has basically gone into hibernation. Come September, when 'spring time' happens and the sun returns in the southern sky, we hope to hear from Spirit – and resume exploration of the Gusev Crater – when it calls back to the JPL."

In 2011, with the launch of the Mars Science Lab, the focus of exploration will shift to investigate whether the ancient aqueous environments were habitable. According to Grant, the Mars Science Lab will be geared to search for – and study – the existence of organic carbon, the building block of potential life forms on the Red Planet.

Already well in the planning stages, the next generation of Mars rovers will launch in 2018. The current plan calls for dual rovers that will carry complementary tools – including ground-penetrating radar and a drill on a European rover capable of penetrating one meter into the subsurface – increasing the depth of subsurface investigation.

According to Grant, the future exploration of Mars could involve bringing back samples to Earth. The next generation rovers will be searching for the necessities of human space travel and exploration – potential fuel sources on Mars, perhaps gas hydrates or near-surface water that could be converted to hydrogen energy.

Matson, Braunstein Winners Announced

The best paper and poster award winners have been announced for presentations at the recent AAPG Annual Convention and Exhibition in New Orleans.

► The George C. Matson Award, presented for the best oral presentation, goes to **Satinder Chopra**, with Arcis Corporation in Calgary, Canada, for the paper "Detecting Stratigraphic Features via Cross-Plotting of Seismic Discontinuity Attributes and Their Volume Visualization."

His co-author was **Kurt J. Marfurt**, with the ConocoPhillips School of Geology and Geophysics at the



University of Oklahoma, Norman, Okla.

Chopra has written five articles for the EXPLORER's popular Geophysical Corner column, most recently in November 2009.

► The Jules Braunstein Award, presented for best poster presentation, goes to **Eddy Lee, Craig Shipp, Willem Hack, J. Larry Gibson and Fa Dwan**, for "Quantifying the Probability of Occurrence of Shallow Gas as a Geohazard."

AAPG members Lee, Shipp and Gibson are with Shell International E&P, Houston, and AAPG member Dwan is with Shell E&P Technology, Houston. Hack is with Shell International E&P, Houston.

The awards will be presented at the opening session of the next annual convention, which will be held April 10-13 in Houston.



Petroperu 2010 Bid Round



Knowledge from C&C Reservoirs

C&C Reservoirs through DAKS - Digital Analogs Knowledge System provides an online service to help exploration companies understand the hydrocarbon plays in Marañón, Ucayali, Santiago, Huallaga and Sechura basins through

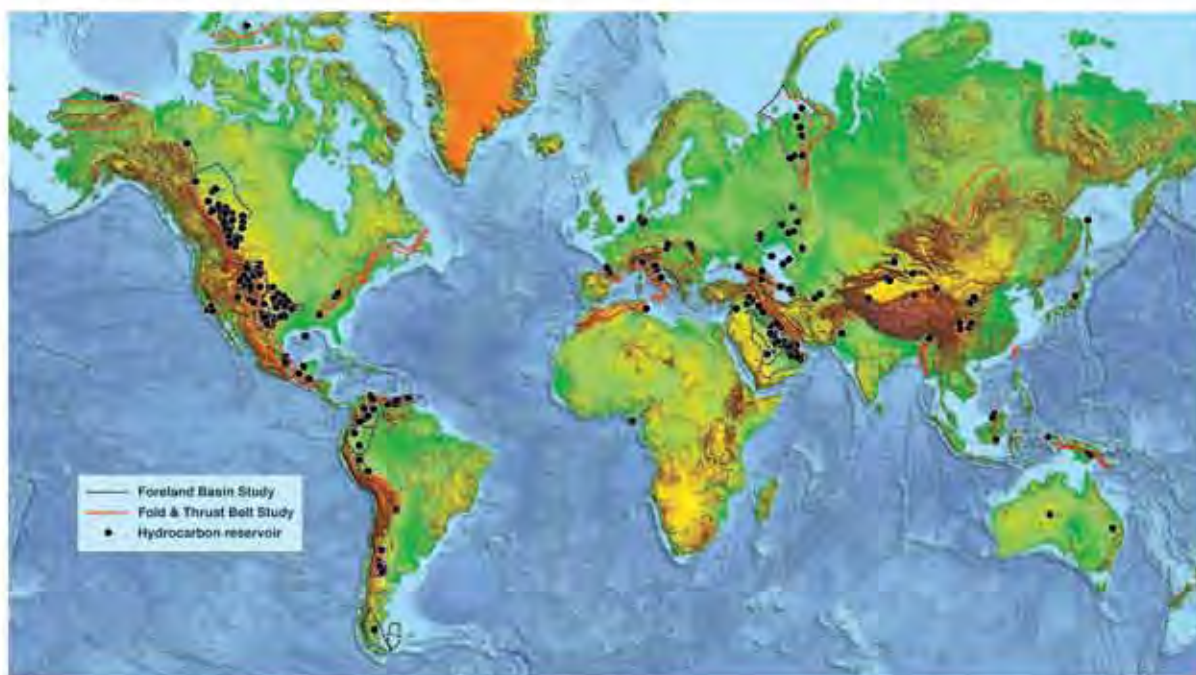
[1] Field Analogs - Technical data on >400 hydrocarbon reservoirs occurring within foreland and fold and thrust belt settings.

[2] Global Fold and Thrust Belt Study - The structure, stratigraphy and petroleum systems of 33 fold and thrust belts.

[3] Foreland Basin Study - Covers 15 foreland areas [20 basins] outlining common factors controlling successful petroleum systems and plays.

[4] Field Evaluation Reports - Detailed reports are available on the San Martin, Cashiriari and Aguaytia fields in the Ucayali basin and the Corrientes field in the Marañón basin.

– Illustrated below



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FOUNDATION CAMPAIGN ENTERS FINAL PHASE TO GOAL OF \$35 MILLION

The AAPG Foundation's ambitious financial campaign, "Meeting Challenges ... Assuring Success," is entering a final phase in reaching its goal of ensuring that the presence and impact of geology and geoscience education will continue for future generations.



The campaign's purpose is simple and direct – it aims to raise funds to support charitable, educational and scientific activities related to the geosciences.

"I believe we all can agree that the impact of earth sciences on mankind is being recognized now more than ever before," campaign co-chair Jack Threet said in announcing the final stage of the campaign at the 2010 Annual Convention and Exhibition in New Orleans. "It has become imperative to develop new methods of energy resources – and AAPG Foundation programs are at the core of this new research."



WE NEED YOUR HELP

The Foundation is proud of its solid track record in successfully fulfilling its mission while prudently managing donor funds.

The accompanying graphics show the campaign's priority opportunities and the actual gifts and pledges received compared to its goals; the Foundation has been successful in securing \$28 million in five priority areas.

And it matters because while new resources and discoveries are on the horizon, the funding necessary for these activities is limited. While many organizations, including government agencies, are decreasing their geoscience support, the AAPG Foundation has maintained a conscientious funding practice throughout the years to

provide stable support for qualified programs and requests – even during economic downturns.

Most of the funds raised to date are endowments made to support students, teachers and researchers.

Foundation leaders noted the idea for this financial campaign was partially inspired by a poll of AAPG members that found youth education and outreach to be the program most in need of additional significant support.

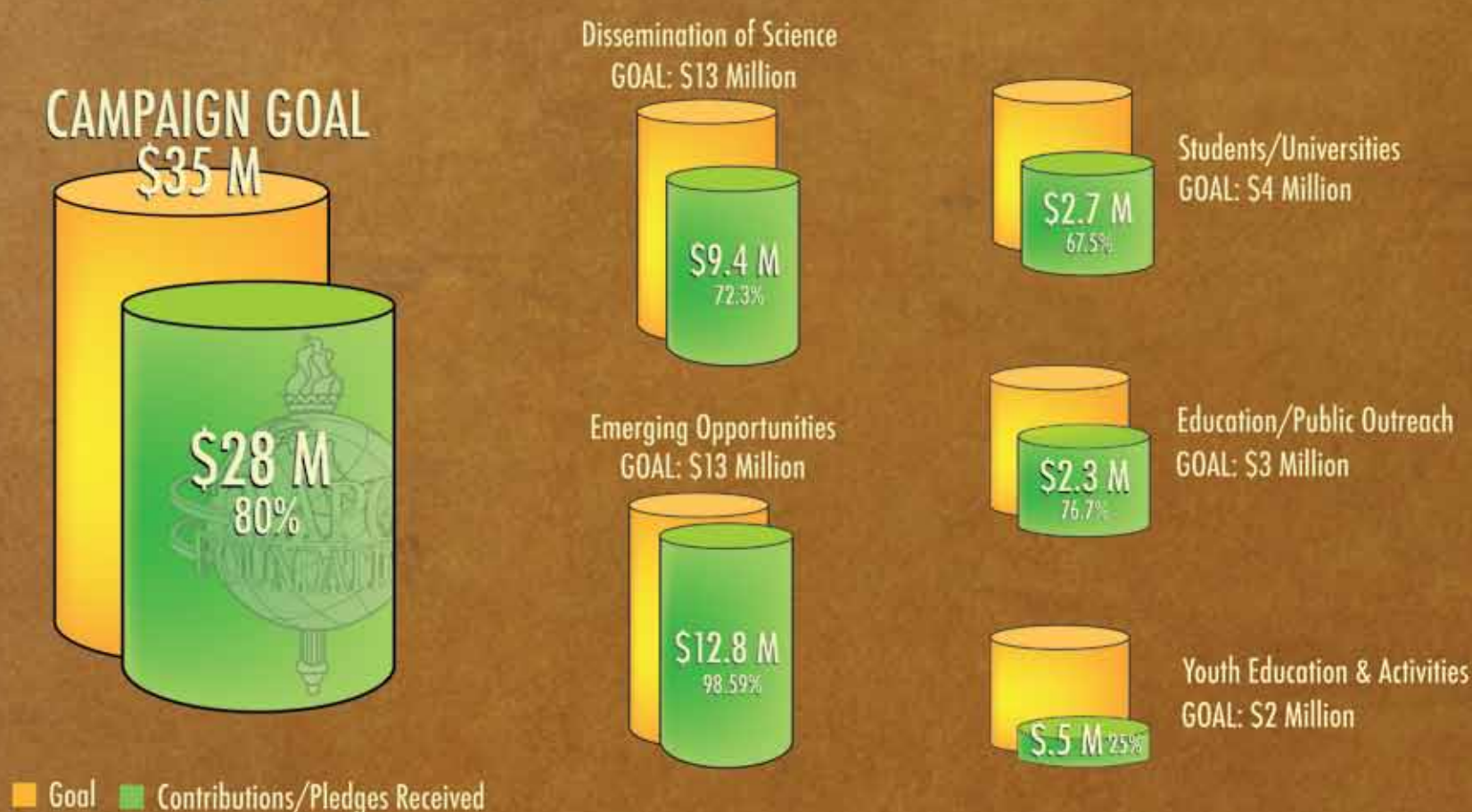


Now, they say, is the time to accept this challenge and make a difference in geoscience education and research.

Celebration of this campaign is scheduled for the 2011 AAPG Annual Convention and Exhibition in Houston with the campaign officially ending at the end of 2011.

HELP MEET THE CHALLENGE!

AAPG CONTRIBUTIONS



BE THE CLOSER

Foundation and Association Executive Director Rick Fritz is fond of quoting an old Chinese proverb, "Dig a well before you get thirsty!" There are key opportunities to make a difference in our future.

"Now is the time for those who want to be closers to step forward," Fritz said. "We are looking for donors who want to make up the difference because it matters to our profession."

Your partnership with us in this unprecedented initiative is greatly appreciated.

Please consider a five-year pledge to the Foundation with the attached reply envelope.

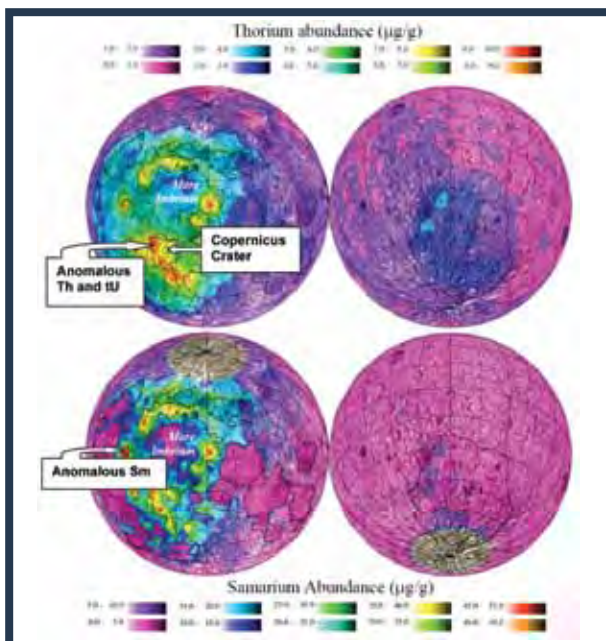
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We want to add your name to the "Closing" list of donors, don't be left behind. All names and contributions will appear in an upcoming issue of the EXPLORER.



Please contact Rick Fritz, Executive Director
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Above – Inferred thorium abundance on a two-hemisphere map projection. (From Elphic, et al., 2000, and Yamashita, 2009.)

Below – Inferred samarium concentrations in the Imbrium/Procellarum regions. (From Elphic, et al., 2000.)

Moon Uranium Has Intriguing Implications

By MICHAEL D. CAMPBELL and WILLIAM A. AMBROSE

The indication of uranium on the moon reported by Japanese researchers last year could have wide implications.

The Japanese Kaguya spacecraft, which was launched in 2007, detected uranium with a gamma-ray spectrometer. Kaguya, officially named SELENE (Selenological and Engineering Explorer), crashed into the lunar surface at the end of its mission in June 2009.

Results from the exploration suggests that anomalously high uranium, thorium and iron (which infers certain strategic commodities as well) appear to be



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concentrated in Procellarum KREEP Terrain and South Pole Aitken Basin on the moon.

One of the chapters of an AAPG "Special Paper," produced by members of EMD's Uranium (Nuclear Minerals) Committee and currently in preparation by the AAPG Astrogeology Committee, focuses in part on the findings – and we bring this information to you now because the Special Paper will require a number of months before it is released.

Any discovery of off-world uranium and thorium in potentially economic concentrations could have a major impact on nuclear-power development on Earth and accelerate lunar exploration.

This may well result in a new space race among international interests to develop mineral resources on the moon.

High-grade uranium deposits found on Earth that may have analogies on the moon likely are those found in Canada and northern Australia. The ore-body tonnage and associated ore grade may need to be higher than those found on Earth before economic advantages are likely to justify off-world development.

The metal-rich impact sites known on Earth also have off-world analogs.

On the moon, for example, early indications of anomalous sites containing high levels of thorium, samarium and recently uranium will be on NASA's list for follow-up investigations when the United States returns to the moon with manned missions – assuming China, India, Russia or other countries do not claim the sites first. Recent discoveries of anomalous uranium on the moon may change the political dynamics in space, especially with Iran recently demonstrating an interest in space.

Combine that with China's increasing claim on strategic minerals on Earth (such as samarium and other rare-earth minerals); these commodities play an important role in the world's development today. Recent announcements suggest these minerals will soon be in short supply, and off-world resources of these commodities also will receive attention by those national interests exploring the moon and asteroids.

We see a particular irony in the role that meteor and comet impacts may have played in bringing not only water to Earth but also metals of economic value – such as nickel, uranium, thorium, etc. As previously discussed, areas in and around certain lunar impact craters have been found to contain thorium, uranium and samarium. On Earth, economic concentrations of nickel and other constituents of interest have been found near Sudbury in Ontario, Canada; in the Bushveld-Vredefort structures in South

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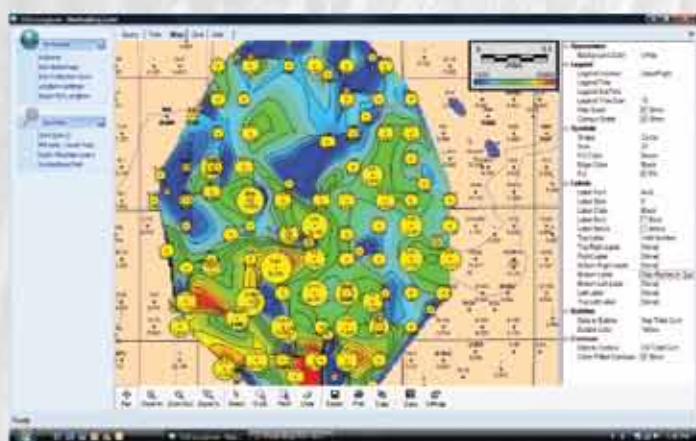
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| API | Operator | Lease | Wells | County | Top Depth (ft) | Bottom Depth (ft) |
|--------------|-------------------------|-----------------------|-------|----------|----------------|-------------------|
| 429108100002 | HUBBARD OIL & GAS | SHAWHORN, WELLS 1 & 2 | 2 | ATASCOSA | 10,900 | 11,100 |
| 429108100003 | HUBBARD OIL & GAS | SHAWHORN, WELLS 3 & 4 | 2 | ATASCOSA | 10,900 | 11,100 |
| 429108100004 | COUGHENOUR, DAVID E | WYATT, 1 & 2 | 2 | ATASCOSA | 10,900 | 11,100 |
| 429108100005 | TRINITY PETROLEUM CORP. | WYATT, 1 & 2 | 2 | ATASCOSA | 10,900 | 11,100 |
| 429108100006 | SHAWHORN OIL CO. | WYATT, 1 & 2 | 2 | ATASCOSA | 10,900 | 11,100 |
| 429108100007 | SHAWHORN OIL CO. | WYATT, 1 & 2 | 2 | ATASCOSA | 10,900 | 11,100 |
| 429108100008 | SHAWHORN OIL CO. | WYATT, 1 & 2 | 2 | ATASCOSA | 10,900 | 11,100 |
| 429108100009 | SHAWHORN OIL CO. | WYATT, 1 & 2 | 2 | ATASCOSA | 10,900 | 11,100 |
| 429108100010 | SHAWHORN OIL CO. | WYATT, 1 & 2 | 2 | ATASCOSA | 10,900 | 11,100 |
| 429108100011 | SHAWHORN OIL CO. | WYATT, 1 & 2 | 2 | ATASCOSA | 10,900 | 11,100 |
| 429108100012 | SHAWHORN OIL CO. | WYATT, 1 & 2 | 2 | ATASCOSA | 10,900 | 11,100 |
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| 429108100015 | SHAWHORN OIL CO. | WYATT, 1 & 2 | 2 | ATASCOSA | 10,900 | 11,100 |
| 429108100016 | SHAWHORN OIL CO. | WYATT, 1 & 2 | 2 | ATASCOSA | 10,900 | 11,100 |
| 429108100017 | SHAWHORN OIL CO. | WYATT, 1 & 2 | 2 | ATASCOSA | 10,900 | 11,100 |
| 429108100018 | SHAWHORN OIL CO. | WYATT, 1 & 2 | 2 | ATASCOSA | 10,900 | 11,100 |
| 429108100019 | SHAWHORN OIL CO. | WYATT, 1 & 2 | 2 | ATASCOSA | 10,900 | 11,100 |
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| 429108100021 | SHAWHORN OIL CO. | WYATT, 1 & 2 | 2 | ATASCOSA | 10,900 | 11,100 |
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International players join in

Marcellus Poised for Even More Attention

By LOUISE S. DURHAM, EXPLORER Correspondent

Trends come, trends go. This holds true for the oil and gas industry as elsewhere. For a number of years, both large and small independents have reigned supreme in domestic onshore land plays after the Big Guys pretty much exited these areas to chase more economically attractive targets. These included big deepwater finds on the international scene and the Gulf of Mexico in particular. Then a funny thing happened. Onshore once again became alluring, owing principally to some fairly amazing production – and predicted future



BILLMAN

potential – from the many relatively new shale gas plays. Major companies and others began announcing land acquisition deals even

“The way to come in is to invest through joint ventures, partnerships or other arrangements in private and public companies that have established plays.”

before the now-infamous spill in the deepwater Gulf in April. This catastrophic event has the potential to spur increased interest in land drilling

especially considering the six-month-minimum moratorium for drilling in water deeper than 500 feet. Even oil and gas folks far removed from offshore are watching and opining as to how the unfolding saga may alter industry activity. “If the moratorium continues for any significant period of time, this by nature forces companies to relook at where they’re looking for reserves,” said AAPG member Dan Billman, a veteran geological consultant in the Appalachian Basin. “Some operators may well consider placing more emphasis on onshore, less risky reserves.” A few months prior to the GOM debacle, ExxonMobil hit the front pages with its announcement to snap up XTO Energy, which is known for its appealing portfolio of domestic shale gas, tight gas, coalbed methane and shale oil. The \$41 billion all-stock deal indicates the industry giant has confidence in the future for domestic natural gas despite the current oversupply and anemic demand.

Primed for Take-Off

As might be expected, the Appalachian Basin’s Marcellus Shale play, with its estimated reserve potential of as much as 500 Tcf and its proximity to the gas-guzzling northeastern markets, is attracting some new/former landlubbers as well as enticing current players to increase their holdings. A study recently released by Pennsylvania State University energy and mineral engineering department stated that the Marcellus, when fully developed, has the potential to be the second largest natural gas field in the world, superseded only by the South Pars/Asalouyeh field shared between Iran and Qatar. The study, “Economic Impacts of Pennsylvania Marcellus Shale Natural Gas Play: An Update,” was funded by the Marcellus Shale Gas Coalition. “Converted to BTUs, the natural gas found in the Marcellus could be equivalent to the energy content of 87 billion barrels of oil,” said Timothy Considine, professor of energy economics, school of energy resources at the University of Wyoming, and co-author of the study. “This would be enough to meet the demand of the entire world for nearly three years.”

Some economic findings revealed in the report might spur states fortunate enough to harbor shale plays to do essentially whatever it takes to encourage drilling and development given the omnipresent need to beef up state government coffers. “In Pennsylvania, the development of these historic resources, while still in its infant stages, is credited with the creation of thousands of jobs and billions in annual revenue for the state,” Considine said. “Over the next two years, this growth is expected to increase rapidly.”

Longtime industry bigwig Royal Dutch Shell, which has been involved in tight gas activity in the United States since 2001, recently announced it has acquired a major presence in the Marcellus via its purchase of Warrendale, Pennsylvania-based East Resources.

Shell agreed to ante up \$4.7 billion for the deal.

According to Shell, East owns 1.05 million net acres, principally in the Appalachian Basin. East is one of the

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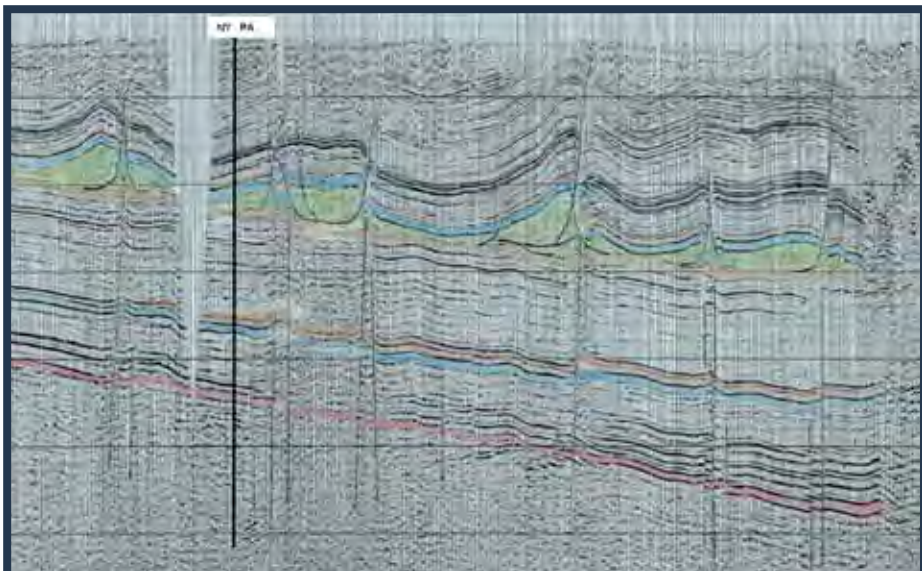
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Regional 2-D seismic line (north to south) across northeastern Pennsylvania's Marcellus Shale basin. Marcellus Shale overlies (blue/green) salt cored thrust faults.

2-D Assumes Fault-Finder Role in Marcellus Shale Play

BY DIANE FREEMAN, EXPLORER Correspondent

Vintage 2-D seismic data is helping to map major faults in the world-class Marcellus Shale play, while newer 2-D proprietary or spec seismic is identifying even smaller structural features.

That was the insight provided by AAPG member James Morris, chief geophysicist for Range Resources Corp.'s Marcellus Shale division in Pittsburgh since 2004, who discussed seismic applications in the Marcellus Shale



MORRIS

at the 16th annual 3-D Seismic Symposium earlier this year held in Denver.

"Vintage 2-D will allow you to map a regional structure and identify major faults," Morris told the 700 attendees. "Newer 2-D can help identify even smaller structural features and faults."

This newer 2-D seismic data can provide up to five times the special sampling and three times the frequency content, he said.

Also, high fold, high frequency, wide azimuth 3-D seismic has provided detailed isochrones of shale units, local lineaments, open fracture directions and possibly other rock properties, he said.

"The north central and southwestern part of Marcellus are the main drilling and seismic activity right now," Morris said. In the northeastern Marcellus Shale play area, there are more proprietary and spec/multi-client 2-D and 3-D seismic surveys being acquired than in the southwest, he said.

This area is within 60 miles of the Allegheny Structural Front and within the thickest part of the Salina Salt basin.

The Marcellus Shale lies under the Allegheny Plateau, west and northwest of the Allegheny Structural Front. The two main areas of drilling and seismic activity currently are located in northeastern Pennsylvania and in southwestern Pennsylvania to northern West Virginia.

"With the Devonian Marcellus Shale getting increased focus from independents, and more recently major oil and gas companies, Marcellus reserve estimates also have been rising," Morris said.

From 1985 to 2009, Marcellus reserve estimates rose seven fold from 67 TCF to 489 TCF – "a world class gas field by any yardstick," he said.

With about 45,000 square miles of prospective area – mainly in Pennsylvania but also in lower New York and north central West Virginia – the Marcellus is probably one of the largest in size, too.

Case Study

Morris presented a case study and showed numerous slides of Marcellus charts and data.

"Almost all Marcellus operators acquire some kind of seismic data, from vintage 2-D to modern 3-D before drilling, especially in the fold belt region," Morris said. "Acquiring 3-D seismic can be quite a challenge in the rugged terrain of northeastern Pennsylvania."

"It's pretty rough terrain," he added. "We had a hard time accessing here."

Steep-sided canyons dropping 1,000

See **Multi-Seismic**, page 24

Correction

An article in the June EXPLORER on the results of the recent Imperial Barrel Awards competition misidentified one of the competing schools. The Southwest Section-winning IBA team was the team from the University of Texas at Arlington.

Team members earned \$1,000 in scholarship funds for their school plus individual medals for themselves as IBA finals participants.

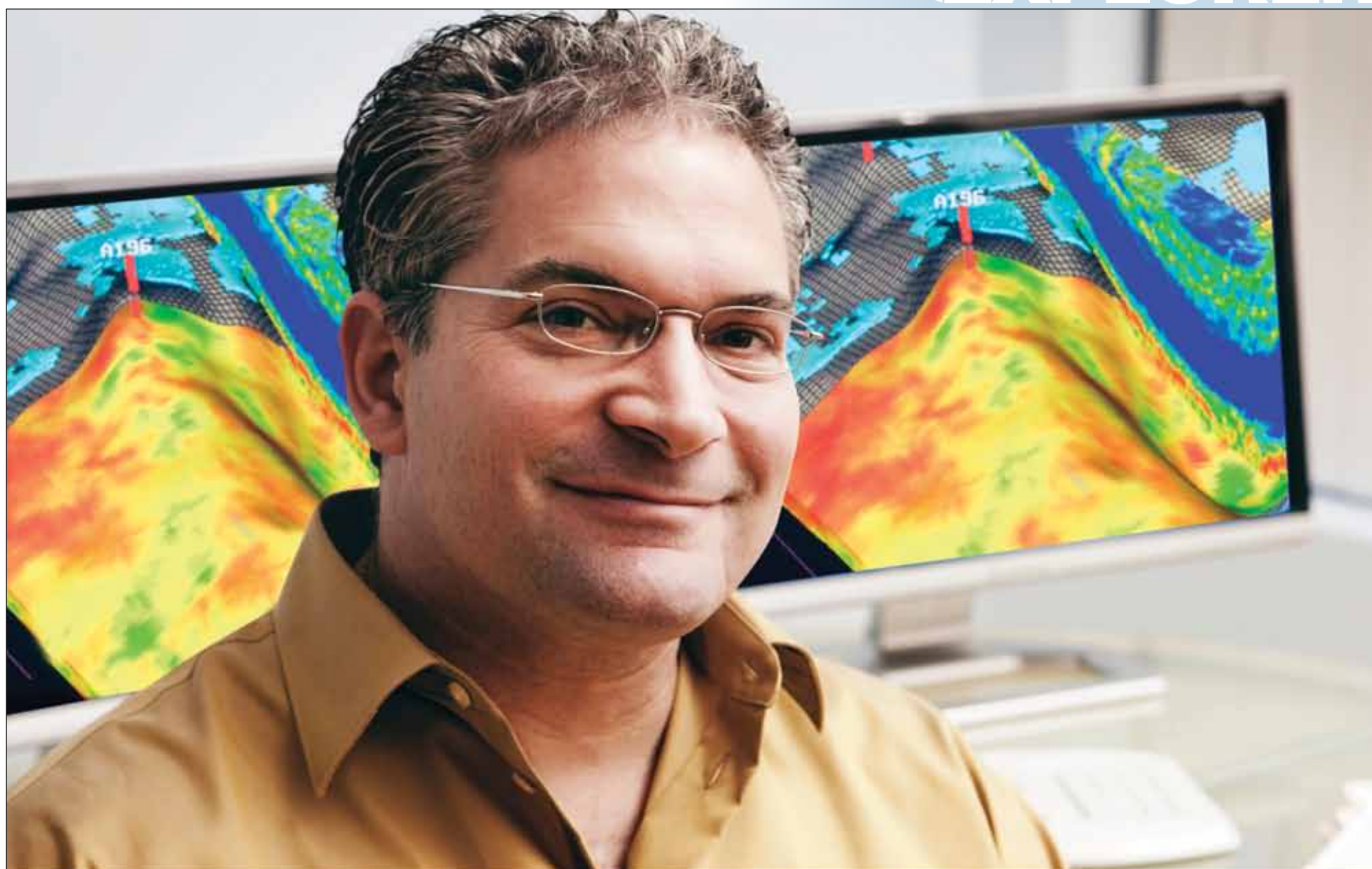
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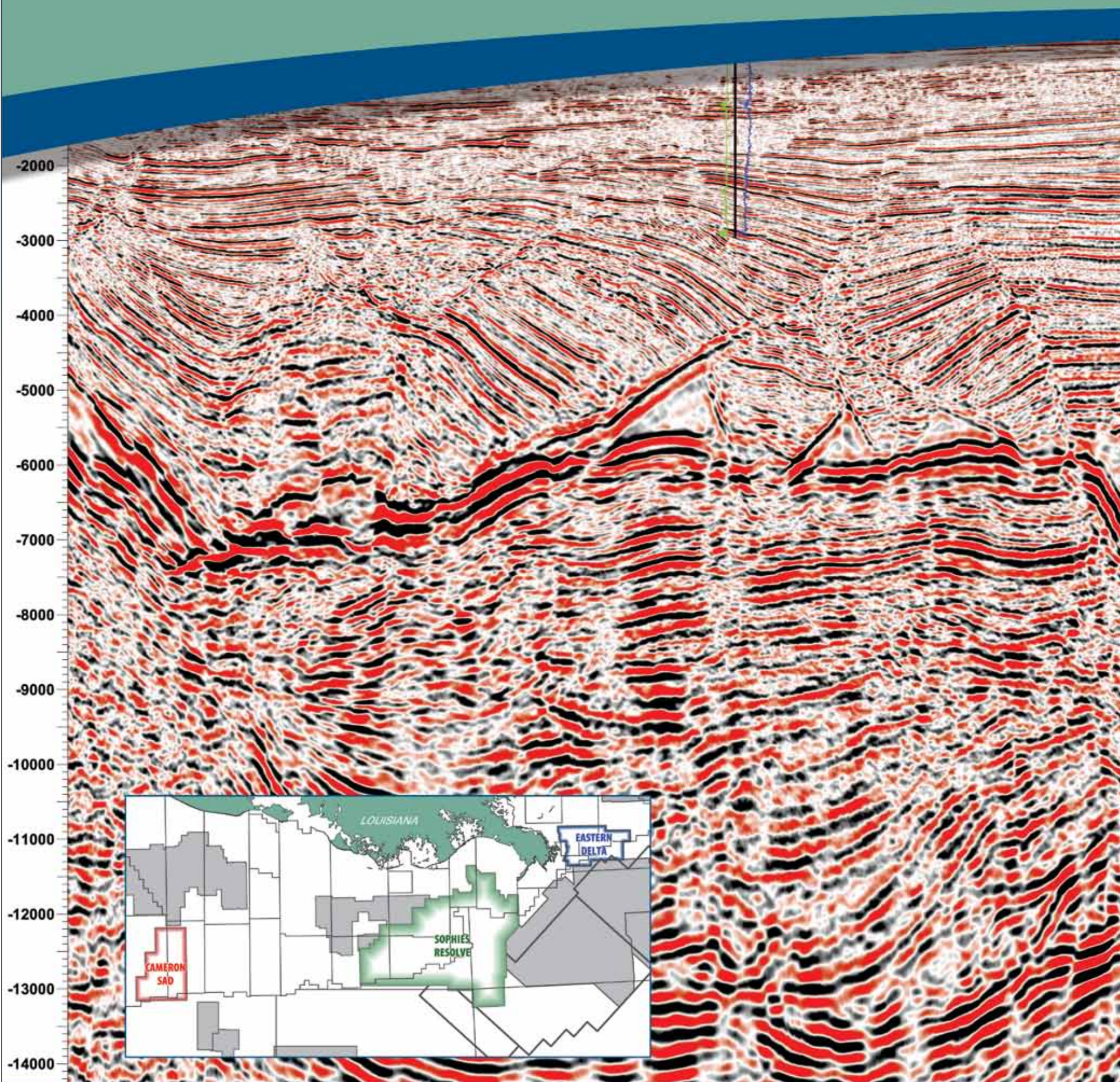
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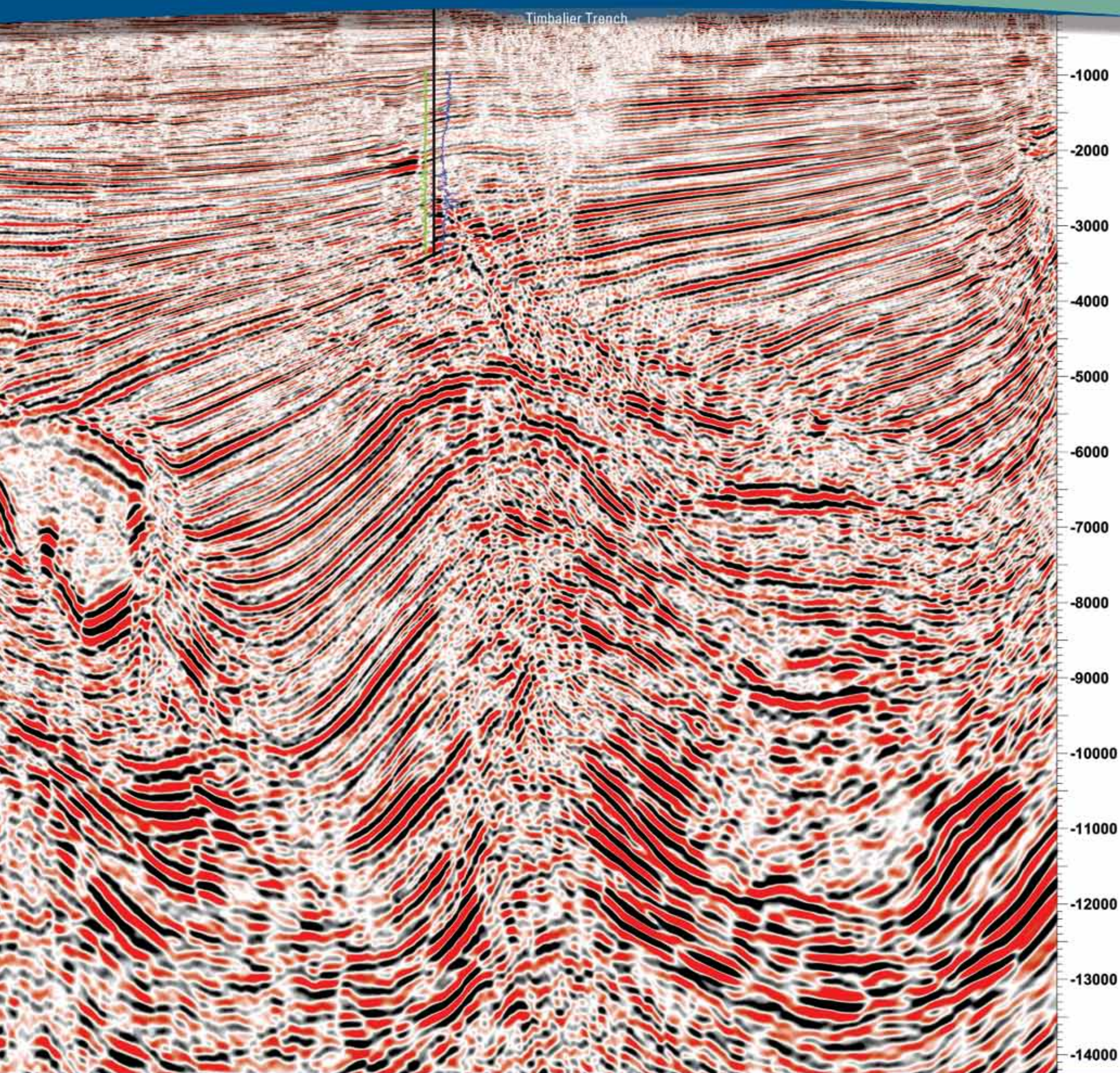


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Multi-Seismic from page 20

feet with boulder-capped ridges make shot hole drilling difficult and often require heli-drills, he said.

"Roads within the canyons are sometimes vibrated to add fold for imaging problems when shot hole access is limited," he said.

The velocity of the Marcellus Shale in the southwest is generally slower than the northeast. The Marcellus can be divided into two stratigraphic units in the far western Allegheny Plateau, he said.

The Upper Marcellus has an average velocity of about 11,500 feet/second, while the Lower Marcellus has an average velocity of 10,000 feet/second or less.


"The detection and resolution out of the Upper and Lower Marcellus and these small horst blocks can only be imaged with high resolution seismic, either 2-D or preferably 3-D," he said.

"The western Allegheny Plateau sits on the northwestern boundary of the Rome Trough and is dissected by numerous northwest to southeast cross strike discontinuities," Morris said. "These deep seated features appear to have influenced shallower structures right up through coal deposition.

He said that 3-D structure, 3-D coherency and 3-D curvature maps on the Marcellus and encasing formations all show the footprint of these deep features and can divide the shale into structural provinces, providing important insights to well performance.

"Since the western Allegheny Plateau seismic data is so good, we're in the process of trying to extract rock properties via seismic inversion. The first step involves modeling the Marcellus for anomalies that might be detected with various seismic inversion volumes," he said.

Some preliminary results are the stratigraphic interpretation of the high-resolution acoustic impedance cube.

"Interpretation shows identification of potential maximum flooding surfaces relating to different depositional cycles within the Upper Marcellus. These distinct depositional cycles may exhibit differing acoustic and stratigraphic reservoir properties carrying operational significance all the way through gas field life cycle from intelligent geosteering to multi-stage frac design," Morris said. 

Marcellus from page 18

largest Marcellus shale holders, boasting 650,000 highly contiguous net acres primarily in Pennsylvania.

This Marcellus acreage is almost 100 percent operated with high average working interest and access to pipeline infrastructure.

East also lays claim to more than 100,000 net acres in the Rockies in the fledgling Niobrara shale play, which also is a hot attraction these days.

International Playground?

The Marcellus is taking on a decided international bent that actually began early-on.

For example, Statoil joined forces with domestic big Marcellus player and natural gas devotee Chesapeake Energy back in 2008 when it purchased nearly a third of Chesapeake's holdings in the play. Statoil reportedly has experienced good production performance and recently added 59,000 net acres to its current 600,000 net acre holdings per terms of the 2008 joint venture agreement.

Recently, Mitsui E&P, a unit of Mitsui & Co Ltd., agreed to fork over a cool \$1.4 billion for a 32.5 percent stake in Anadarko's Marcellus shale holdings, located principally in north-central Pennsylvania.

Further contributing to the international status of the Marcellus play, Mumbai's Reliance Industries has acquired a 40 percent interest in Atlas Energy's core Marcellus shale acreage position. The tab was reported to be \$1.7 billion.

U.K.-headquartered BG Group has joined the Marcellus action via a joint venture with Dallas-based EXCO Resources, which has operations principally in Appalachia as well as Texas and Louisiana.

Investment interest from overseas continues.

"Recently, I started doing due diligence for an international investor," Billman said. "It will be a new venture for them – and there likely will be more of that to come.

"Right now, if you come in wanting to lease properties, most of the leasing is done," Billman noted. "So the way to come in is to invest through joint ventures, partnerships or other arrangements in private and public companies that have established plays.

"There are some companies here now that still may be looking for partners," Billman emphasized.

Of course, if you have the really big bucks and ferret out a really sweet opportunity, you can follow the ExxonMobil and Shell model, i.e., buy the whole company.

If the current interest and investment activity escalates and the Appalachian turf gets too crowded, don't fret.

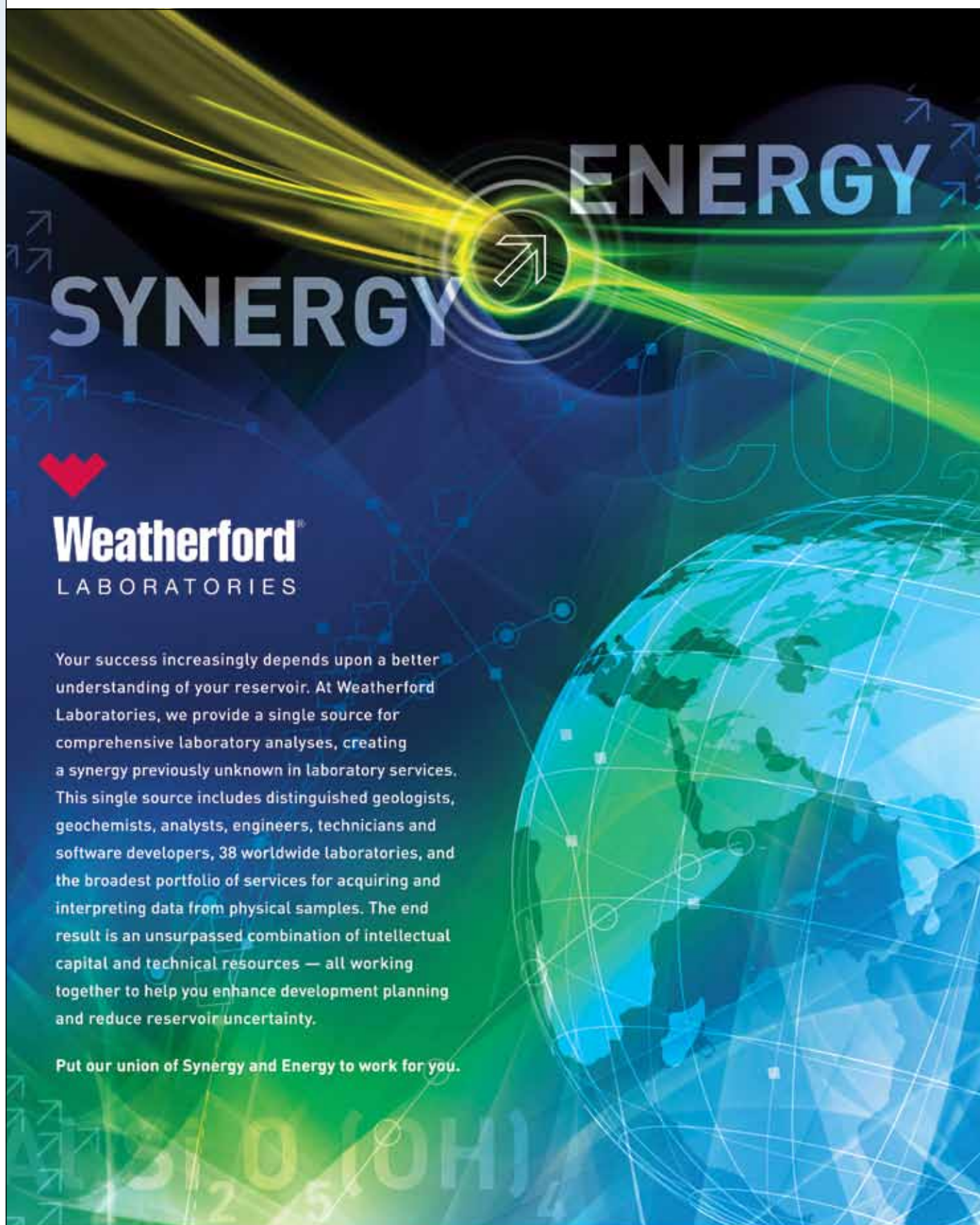
You have options.

Consider the raft of other domestic shale plays dotting the landscape, including the attraction of the moment: oil shale plays, i.e., the Bakken in North Dakota, and shale gas plays rich in liquids, such as the Eagle Ford in Texas.

A caveat: Shale plays carry their own kind of risk, owing in large part to the burgeoning non-industry skepticism over the safety of fracturing fluid used to make these dense rocks produce.


"We have our own kind of moratorium in the Marcellus," Billman noted. "Right now, there's no large volume hydraulic fracturing in the state of New York.

"As a result, we've seen some New York players move their emphasis into Pennsylvania." 



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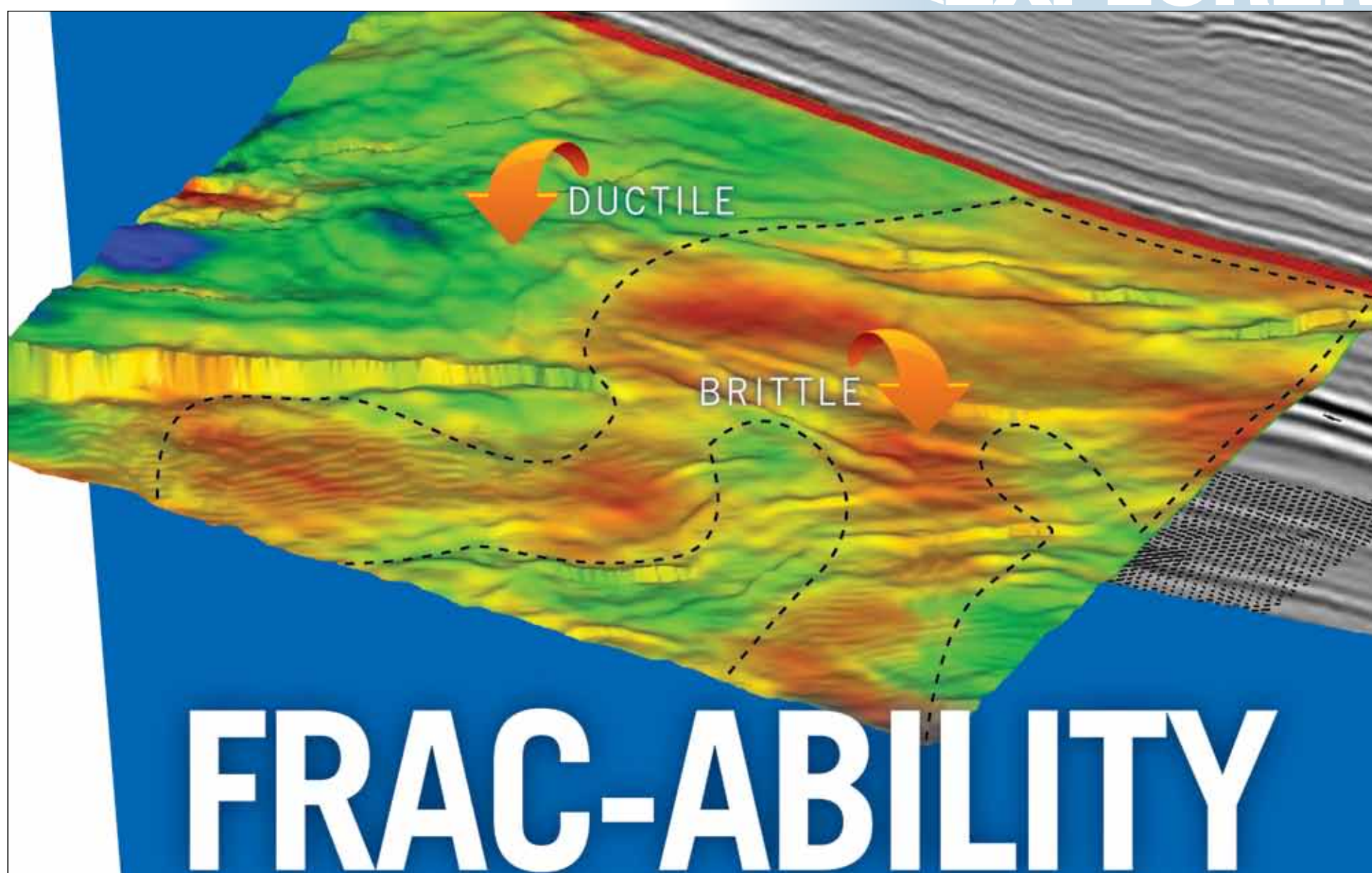
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Complex Traces: There's an 'App' for That

By BOB HARDAGE

Last month we introduced the concept of a complex seismic trace; this month we'll show how a complex trace provides a rigorous way to set the boundaries of data windows associated with distinct seismic reflections – and we'll define the polarities of each of those reflection events.

This complex trace application is important because it is necessary to determine the polarity of every reflection event that spans a layered system in order to determine whether impedance increases or decreases from layer to layer – which in turn provides insight into the lithology, porosity and type of pore fluid in each rock layer.

The principal problem involved in determining the polarity of a seismic reflection event is the challenge of deciding what part of the seismic response represents the reflection event.

Questions that have to be answered include:

- ▶ Where does the reflection event start and stop?
- ▶ How many peaks and troughs are embedded in the reflection event?
- ▶ Which peak or trough of a reflection event should be used to define reflection polarity?

The amplitude-envelope function determined from a complex seismic trace provides a way to define the start time, stop time, wavelet character and polarity of overlapping – but distinct – reflection events.

An example seismic trace, its complex-trace equivalent and the associated amplitude envelope are shown as figure 1.

Defining Reflection Events

As shown on figure 1, the amplitude envelope of a complex seismic trace is an oscillating function that has alternating maxima and minima. The data window between two successive minima of an amplitude-envelope function defines a distinct packet of seismic energy.

Terms that have been used to describe this interval between successive amplitude-envelope minima are energy packet, wavelet packet and reflection event. Once you equate the term "reflection event" with energy packet (or with wavelet packet), you can then ask the question:

"How many reflection events occur

between time coordinates A and B on figure 1?"

You will get the definitive answer "13." A wavelet packet such as any of those defined on figure 1 may be a reflection from a single interface, or it may be a composite of several reflections from closely spaced interfaces. In either case, a wavelet packet represents the shortest-time concentration of reflection of energy that can be recognized in a seismic response.

Because amplitude-envelope minima can be determined numerically after an amplitude envelope is calculated, the start time, stop time and time extent of a reflection event can be defined with mathematical rigor, as shown by each of the labeled "events" on figure 1, and do not have to be left to interpreter judgment.

The basic seismic wavelet that is embedded in the seismic trace on the left of figure 1 is shown in the center part of the figure. A reader can compare this wavelet with its associated reflection trace on the left of the display to attempt to decide how many reflection events exist across the time interval A to B.

In classroom and workshop exercises, people have tended to conclude that the number of reflection events ranges from a low of five or six to a high of 17 or 18. Using the mathematical concept of amplitude-envelope minima to define the boundaries of a reflection event, the correct answer is 13 reflection events (right-hand panel) as already stated.

Defining Reflection Polarity

When a reflection event is defined by this energy packet concept, the polarity of the reflection event can be defined as the algebraic sign of the real-trace extremum (either peak or trough) that is closest to the maximum of the amplitude-envelope that encompasses the energy packet.

Using this concept, the polarity of reflection events 5 and 10 on figure 1 are positive, and the polarities of reflection events 7 and 12 are negative. Thus a complex-trace allows seismic reflection polarity to be defined with the same mathematical rigor that defines the time extent of each reflection event.

A second illustration of energy packets being used to define distinct reflection events and their polarities is provided as figure 2.

In this case, there are excellent examples of energy packets distinguishing overlapping reflection events (events 7 and 8 and events 11 and 12) and defining the data windows spanned by faint, low-amplitude reflections (events 2 and 3). ■

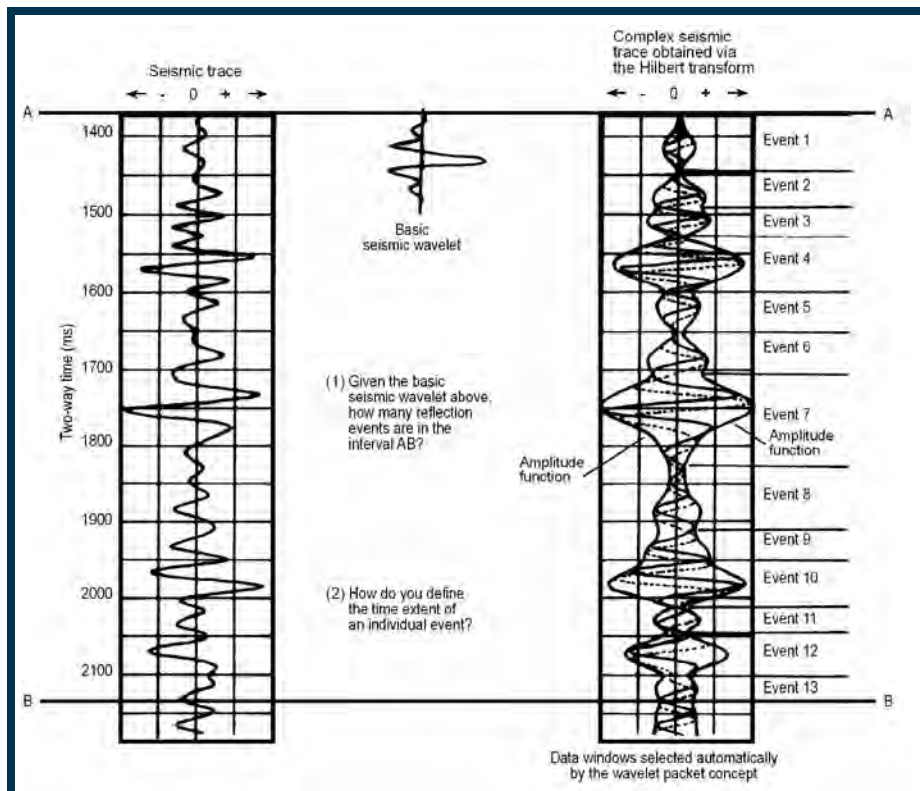


Figure 1 – The concept of an energy packet (or wavelet packet) being used to define the time extents and polarities of reflection events. The wavelet that illuminates the geology is shown in the center. The resulting reflection trace is displayed on the left. The display on the right is a complex seismic trace consisting of a real part (which is the real trace on the left repeated as a solid-line wiggle) and an imaginary part (the Hilbert transform of the real trace shown by the dash-line wiggle). The amplitude envelope is the function that bounds this complex trace on the left and right so as to touch every positive and negative extremum of the real and imaginary parts of the complex trace.

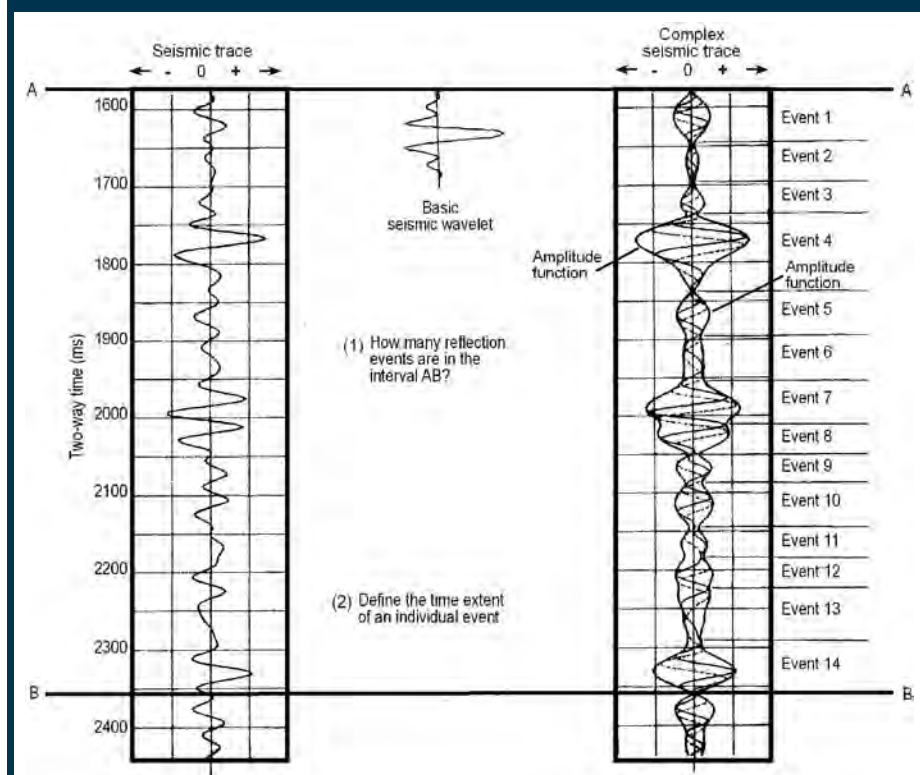


Figure 2 – Example 2 of energy packets being used to define distinct reflection events in the seismic trace on the left and also the polarities of those reflections.

Moon Uranium from page 16

Africa; in association with ring structures in Baltic Shield rocks of Sweden and Finland; and elsewhere.

They are tempting candidates for being of off-world origins, although the prevailing thought is that such deposits on Earth are either of progenetic (pre-impact), syngenetic (contemporaneous) or epigenetic (post-impact) origin.

Currently, there are about 170 terrestrial

impact structures presently known on Earth, with a discovery rate of about five new structures per year.

In any event, exploration continues on the moon and in the more remote regions on Earth, and will continue off-world this century and beyond. The justification for continuing the move into space is well made by Yeomans (1998). As indicated above, recent exploration discoveries on the Moon by Japan may accelerate activities by China, India, Japan and the United States, which may well set off a new race into space to explore for and develop natural resources, including:

- ▶ Water (from dark craters to make hydrogen for fuel and oxygen, etc.).
- ▶ Nuclear minerals (uranium, thorium and helium-3).
- ▶ Rare-earth minerals.
- ▶ Other industrial commodities needed for use in space and on Earth.

But until some form of fusion or advanced solar technology is available – sometime in the distant future – the required nuclear resources (uranium and thorium) needed today and in the foreseeable future to drive the nuclear power-generating systems on Earth and in space for the rest of this century depend on the results of

exploration and technological development on current and future missions to the moon and elsewhere, not only for uranium but also other minerals of strategic interests to the United States as well.

Additional information is available in reports from the EMD's Uranium (Nuclear Minerals) Committee via www.emd.aapg.org, and from AAPG's Astrogeology Committee via www.aapg.org/committees/astrogeology/index.cfm. ■

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Spectrum, in conjunction with the Ministry of Energy and Energy Industries, are reprocessing the Trinidad and Tobago Deep Atlantic Area Survey acquired in 2002.

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Madagascar:

Spectrum has signed an agreement with OMNIS (Office des Mines Nationales et des Industries Stratégiques), to reprocess various seismic surveys offshore West, South and East coasts of Madagascar.

The surveys have a total length of approximately 6,000 line km and will be available mid 2010.



The Andaman Islands:

Follows the highly successful reprocessing of West Coast India data and forms part of Spectrum's continuing commitment to the promotion of exploration in the Indian sub-continent.

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Gulf Tragedy Spawns Multiple Probes

By DAVID CURTISS, GEO-DC Director

The tragic loss of life aboard the Deepwater Horizon on April 20 and resulting environmental disaster has shocked the nation. Images of the drill ship ablaze and gripping accounts of crew members leaping from the crippled vessel hoping to save themselves lead to a critical question:

How did this happen?

Since the blast there has been a flurry of activity to provide an answer.

The investigation began immediately with authorities taking statements from survivors of the Deepwater Horizon. The following week it formally became a joint investigation between the Department of Interior and the Department of Homeland Security.

According to the Outer Continental Shelf Lands Act, the Interior department's Minerals Management Service (MMS) has responsibility for investigating all incidents on the outer continental shelf (OCS) involving hydrocarbon exploration and production. Similarly, the U.S. Coast Guard (USCG), part of the Department of Homeland Security, is responsible for investigations related to death, injuries, property loss and environmental damage on the OCS.

Co-chaired by David Dykes, the chief of the MMS Office of Safety Management Field Operations for the Gulf of Mexico (GoM), and USCG Capt. Hung Nguyen, the purpose of the joint investigation is to determine the cause of the accident. In order to accomplish this objective the team



CURTISS

With all the efforts under way to determine what happened, the principals must avoid the rush to judgment and political finger-pointing endemic to Washington.

has the power to summon witnesses, issue subpoenas and take testimony under oath.

The team was given nine months to complete and deliver its report.

Interior Secretary Ken Salazar also established the OCS Safety Oversight Board within the Interior department. The board's tasks are to assist the MMS with its responsibilities in the joint investigation, keep the secretary and his deputy apprised of the investigation's progress, recommend measures to increase OCS safety and to improve the department's management and regulation of the OCS. The board is chaired by the assistant secretary – Land and Minerals Management and also includes the assistant secretary – Policy, Management and Budget, and the department's inspector general.

* * *

In late April President Obama ordered the Interior department to conduct a 30-day review to determine "what, if any, additional

precautions and technologies should be required to improve the safety of oil and gas exploration and production operations on the outer continental shelf."

Delivered on May 27, the 38-page report suggested a series of near-term measures (such as inspection of blowout preventers and safety equipment) as well as longer-term reviews of well control and safety procedures. The report, which was peer-reviewed by individuals selected by the National Academy of Engineering (NAE), also recommended a six-month halt of drilling on 33 permitted wells in the Gulf.

Salazar also asked NAE to conduct an independent assessment "to determine the root causes of the Deepwater Horizon disaster so that corrective steps can be taken to address the mechanical failures underlying the accident."

Studies by the National Academies, including NAE, the National Academy of Science and organized by the National Research Council, are greatly valued by policy makers and regulators. The work

will be conducted by volunteer experts, including members of the NAE, academia and industry.

In the past, such studies have delivered analysis and suggestions that, according to a statement by Salazar, "often lead to results and findings that have had enormous impact on future policy decisions."

As the oil spill continued unchecked, the White House announced on May 22 that the president had issued an executive order forming the Bipartisan National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling.

He named retired Sen. Bob Graham of Florida and former Environmental Protection Agency administrator (during President George H.W. Bush's administration) William Reilly as co-chairs of a seven-person commission, "tasked with providing recommendations on how we can prevent – and mitigate the impact of – any future spills that result from offshore drilling."

In his remarks introducing the commission, the president said, "[I]f the laws on our books are inadequate to prevent such an oil spill, or if we didn't enforce those laws – I want to know it. I want to know what worked and didn't work in our response to the disaster, and where oversight of the oil and gas industry broke down.

"[T]he purpose of this commission is to consider both the root causes of the disaster

See Washington, page 31

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ICE Registration Continues Online

Online registration continues for the upcoming AAPG International Conference and Exhibition – and there's still time to save money by registering now.

The meeting will be held Sept. 12-15 in Calgary, Canada. The general chair is John Hogg.

Members who register on or before Aug. 10 can save \$175 on registration fees.

The meeting's theme is "Frontiers of Unconventional Thinking: Saddle Up for the Ride," and the technical program includes more than 400 presentations addressing topics ranging from unconventional resources to international



discovery thinking.

The program also includes a number of special lectures and sessions, including:

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

▶ A management forum featuring high level industry executives, titled "E&P Challenges in Complex Environments: From the Arctic to Deep Water."

▶ A business forum titled "Unconventional Exploration and Development Geoscientists' Toolbox: What New Tools Do Geoscientists Need in the Next Decade?"

Details and registration forms are available online at www.aapg.org/Calgary.

First results due in 2012

EPA Frac Study to Focus on Water Impact

By MAUREEN N. MOSES

The Environmental Protection Agency (EPA) recently announced plans to undertake a study of hydraulic fracturing, or fracing, to determine its impacts on surface, ground and drinking water resources.

The study is expected to run from 2010 to 2015, and initial results are expected in 2012.

EPA plans to address research questions about the materials used during hydraulic fracturing and how they affect the surrounding communities and ecosystems.

The study will be led and implemented by the EPA's Office of Research and Development. Its goal is to characterize the hydraulic fracturing lifecycle. Doing this



MOSES

will extend the study beyond the fracing processes itself, to the interactions of the frac fluids with water and the environment after injection.

The EPA also will determine if the large quantity of water used for fracing negatively impacts water resource availability for ecosystems and recreational uses.

Exposure

Although producers have been doing hydraulic fracturing for decades, its role in extracting natural gas from shale has made the process more visible to the public and Congress.

Last summer the House Energy and Natural Resources Committee heard testimony on hydraulic fracturing from industry and environmental officials. Many representatives were excited by the potential to increase domestic production of natural gas stored in vast American shale beds. However, there remained concern about the chemicals used in hydraulic fracturing.

An earlier EPA study of hydraulic fracturing, conducted in 2004, determined that frac fluids posed no significant risk to drinking water. In 2005 Congress exempted hydraulic fracturing from federal regulation under the Safe Drinking Water Act.

The current EPA study on hydraulic fracturing was triggered during the appropriations cycle for the fiscal 2010 budget. Language was added to the spending bill urging the EPA to conduct a transparent and peer-reviewed study, citing "committee concern about the risks posed to drinking water."

The committee also questioned the validity of sources used in past EPA reports on the subject.

In the scoping materials released for the study, the EPA recognized there could be substantial variability in local geology and chemical usage between study sites. Three topics will be addressed:

- ▶ The hydraulic fracturing process.
- ▶ Relationships of those processes to drinking water resources.
- ▶ Potential health and environmental risks.

Wyoming's Example

One of the most contentious parts of the fracing safety debate are the chemicals used by corporations during hydraulic fracturing. Identifying chemical constituents in frac fluids is a primary goal of the study, but the EPA will be undertaking work to identify how these constituents may alter when interacting with the surrounding geology and biota.

Despite the findings of the 2004 EPA study and existing state regulations, safety concerns still exist in the minds of the public and lawmakers. The increasing possibility of federal regulation of hydraulic fracturing also has caused concern in industry and the states, which typically argue that existing state regulations have been sufficient.

The Interstate Oil and Gas Compact Commission, comprised of the governors of its member states, called on Congress in early 2009 to not remove the exemption

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S. CLOETINGH - Thermo-mechanical models for rifted basin (de)formation: an integrated approach.

O. CATUNEANU - Sequence Stratigraphy: state-of-the art and applications to hydrocarbon exploration.

M. ENACHESCU - Upper Jurassic source-rock highways in the North Atlantic.

J. SKOGSEID - The Opening of the Central & North Atlantic.

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PORTUGAL – Lusitanian Basin (25th-28th Sept.)

MOROCCO – Agadir Basin (2nd-4th October)

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PARTEX Oil & Gas (Portugal) A. COSTA E SILVA, Chair.Man.Com.

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Exploration on opposing conjugate margins is imbalanced. Relatively speaking, there are a greater number of wells, seismic, discoveries and fields on the Brazilian, Nova Scotian and Newfoundland margins than their conjugates in Angola, Morocco / Iberia and Ireland, respectively. There are a number of varied reasons for this, many of which are not geological.

David E. Brown, CNSOPB (in Explorer, June 2010)

Find me the pre-rift, intra-continental system that was filled, from time to time, with a Jurassic sea. Map it, determine whether it survived and whether it's mature. The research results will enable geoscientists from Ireland, Spain, Portugal and Morocco to connect their data points to the Canadian ones. Up to now, the Canadian side is the only successful Central and North Atlantic Conjugate Margin.

M. Enachescu (in Explorer, June 2010)

The oil and gas potential of Portugal's North Atlantic margin is virtually unexplored. Yet, we are facing Newfoundland and Nova Scotia, so why not? The study of Portugal's outcropping stratigraphy, salt tectonics and associated oil shows, provides a better prediction of what may be expected in the deep offshore, where intense exploration is going on at the moment.

N. Pimentel & Pena dos Reis, Co-chairs Lisbon-2010 (in Explorer, June 2010)

These conferences provide excellent opportunities to meet and discuss with the top specialists on the studies of continental break-up, basin formation and ocean spreading, both from academia and oil companies. It's like having a crash course on some of the hottest topics in marginal basins with the best specialists, in person!

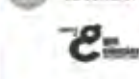
M. Carminatti, Exploration Exec. Manager of Petrobras (in Explorer, June 2010)



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Spring CVD Fruitful; Another Set in Fall

By DEBORAH SACREY, DPA Governmental Affairs Chair

In May we had a great AAPG Congressional Visits Day, when AAPG members over two-and-a-half days met with a host of government officials, lawmakers and their staff.

And now, planning is under way for the next Geosciences CVD (geoCVD), set for Sept. 21-22.

Participants faced a packed schedule during the May geoCVD, but at that time we were able to communicate a strong message about:


- ▶ The importance of oil and natural gas to jobs and the economy.
- ▶ How development of natural resources on public lands is essential to U.S. energy security.
- ▶ The vital role that federal oil and natural

gas R&D plays in finding and producing these resources.

- ▶ Training the next-generation work force.

September will be your next opportunity to join members from AAPG and other earth science societies in telling Congress how important the geosciences are in everyday life. It's a message most senators and representatives need to hear.

Space for this event is limited, so contact David Curtiss (202-684-8225; or dcurtiss@aapg.org) to reserve your spot. Please note that AAPG does not provide funding for members to participate in geoCVD.

Much is happening in Washington, D.C., that affects petroleum geologists. Join us in September for geoCVD 2010 and make your voice heard. 



AAPG members (from left) Sarah Jones, Deborah Sacrey, Gerrit Wind, Larry Jones and Dan Smith in Washington, D.C., for the spring Congressional Visits Day.


Continued from previous page

for hydraulic fracturing under the Safe Drinking Water Act, saying, "the regulation of oil and gas exploration and production activities, including hydraulic fracturing, has traditionally been the province of the states."

As example, in late April the Casper (Wyo.) Star-Tribune editorial board threw its support behind Wyoming Gov. Dave Freudenthal (D), who insists that fracking be regulated by the states and that industry clearly disclose frac fluid constituents.

Wyoming reportedly was to issue its disclosure rules in June. But, according to the paper, "(industry officials) should be starting to realize that the days are numbered of having the state just take their word that chemicals used in fracking are safe."

"The full disclosure advocated by environmental groups isn't likely to happen, either, but Freudenthal ... is right on target when he says a compromise is in order."

The discussions between industry and regulators – both state and federal – have only just begun. 

Washington from page 28


and offer options on what safety and environmental precautions we need to take to prevent a similar disaster from happening again."

The commission has six months to deliver its recommendations.

* * *

And there are yet more investigations under way: Congressional committees began conducting hearings in mid-May about the events leading to the explosion and the environmental and economic impact of the oil spill. And on June 1, Attorney General Eric Holder announced the Justice Department was launching a criminal probe, saying "we have what we think is a sufficient basis for us to have begun a criminal investigation."

But with all the efforts under way to determine what happened, the principals must avoid the rush to judgment and political finger-pointing endemic to Washington.

The true cost of this disaster – 11 people dead, the livelihoods (tourism, fishing, oil and gas production, and more) of entire Gulf Coast communities threatened and as-yet-undetermined ecological and environmental damage – provides a grim reminder not to politicize the process. 

CHALLENGES FOR TODAY.



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OPPORTUNITIES FOR TOMORROW.

Be a part of the inaugural Arctic Technology Conference — submit an abstract today

OTC's new Arctic Technology Conference, 7–9 February 2011 at the George R. Brown Convention Center in Houston, Texas, will address the cutting-edge technologies and innovative practices needed for exploration and production in the Arctic.

The program committee is now accepting abstracts in the following themes:

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Project Puts Fossils and Bones in Schools

By BARRY FRIEDMAN, EXPLORER Correspondent

You may remember AAPG Public Service award winner Owen Hopkins, a past president of the Corpus Christi Geological Society, whose goal was to put geologic maps in the classrooms of fifth and sixth graders.

And while the purpose may have been to put science on the walls, his hope was to instill excitement in the students.

Well, he's at it again – and this time it's not just maps. It's bones.

But first a review:

Hopkins, as part of a program he called "Planting the Seed of Geologic Knowledge,"



HOPKINS

The reward for his effort was a letter: "I want to be a geologist when I grow up. You taught me a lot of stuff."

wanted to:

► Place colorful, laminated, framed U.S. geological time and terrain maps into the

classrooms of fifth and sixth graders.

► Make personal appearances in these classrooms, speaking to kids and educators

in an effort to spark enthusiasm.

► Get colleagues in and around the Corpus Christi area to make similar visits.

And it worked. To date, his initiative has resulted in more than 1,600 such maps in Coastal Bend Area schools.

Phase II, the "Bones in the Schools Program," began when, after encouraging students in two Corpus schools to start paleontology clubs, he encouraged the Texas A&M University, Kingsville, to donate 62 boxes of bones to the schools.

To make the project more interdisciplinary, Hopkins then took the idea to high school welding students and asked them to choose a bone and then design and build a stand for it.

"Our stated goal," Hopkins says, "is for ... students to select a bone, design a stand, weld the stand, paint and prep the stand."

He envisioned a display case, not unlike the trophy case outside the gym, where students could see their work.

"The stands will be signed/initialed by the welding student," he added.

To date, he has placed fossil bones in more than 84 schools – including 30 boxes of Ice Age Mammals, many from an area near Corpus Christi.

Hopkins says the diversity found there rivaled that from the La Brea Tar Pit fauna and also of the Anza-Borrego fauna in California.

What Happened in Vegas

That possibility of such a program in Corpus Christi, he said, was made clear to him in a place 1,500 miles away: Las Vegas.

He and his wife, Susan, were in Sin City the weekend before the 2008 AAPG convention in Long Beach, Calif., when they took a taxi to the Nevada State Museum – "not a usual tourist destination," he said.

But they found the place spectacular, especially when they found themselves under a 16-foot cast of a Mammoth that lived during the Ice Age.

Hopkins said he wondered what it would be like to have something similar in Corpus Christi.

"These same animals lived in Corpus Christi," he said, excitedly. "It was exciting to walk under the creature and really experience its size, because when you tell a student that these animals were 16 feet tall, it is hard to imagine how big they are."

Better to show them.

His plan, then, was to introduce such spectacle and history and to prepare a permanent display for each middle school in the region that would contain:

► Large, actual bones from an extinct mammal that was collected in Nueces County, Texas.

► Drawings of the skeleton of the extinct animal with the displayed bone highlighted.

► An artist's drawing of what the animal looked like when alive with reference scale.

► Maps showing the Nueces River flood plain as it looked 18,000 years ago.

► Renditions of the Corpus Christi Bay "Serengeti Plain," showing the diversity.

To further aid the program, teachers from the specific schools had an opportunity to attend a "Bones in School" workshop to learn more about the incredible diversity of mammal bones found in Nueces County.

"Funding for a project like this," Hopkins

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- **Deepwater Reservoirs: An Integrated Course and Field Seminar**
 - October 4-10, 2010
 - Tabernas and Sorbas Basins, Spain
 - \$2,950.00 per person
 - Includes tuition, guidebook, ground transport, some meals

FOUNDATION UPDATE

Grants-in-Aid, Subscription Get Boost

A new Named Grant for the AAPG Grants-in-Aid program has been established through a donation from Foundation Trustee Associate **Michael S. Johnson**.

The Michael S. Johnson Named Grant will be awarded beginning in 2011 to an Ohio State University graduate student.

The Named Grants-in-Aid Program was initiated in the 1970s when friends of the late Hugh Miser established a memorial fund in the Foundation to award an annual grant. A one-time gift of \$12,500 will endow an annual grant of approximately \$500 (depending on the rate of return from investment of the endowment).

Every \$5,000 added to the endowment will increase the annual grant by about

\$200, up to the maximum of \$3,000 per grant.

Financial support of the Grants-in-Aid program is becoming increasingly important today as many more qualified students are applying for the limited funds.

* * *

Calvin College recently became the newest beneficiary of an AAPG Digital Products Library Subscription through the AAPG Foundation by a generous gift from Trustee Associate **Bruce Dice**.

Dice's \$12,500 one-time gift through the Foundation's endowment program will provide Calvin College students and faculty access in perpetuity to AAPG's digital library of over 850,000 pages of national, international and regional libraries of petroleum, geology and geophysics information.

In the past five years more than 60 colleges and universities have become recipients of the Foundation's Digital Products University Subscription Program, which continues to grow in popularity.

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

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

* * *

The Foundation Trustee Associates have announced a new member. He is:

► **Kevin T. Biddle**, Houston.

His joining boosts the Trustee Associates' membership total to 276 – an all-time high.

Selznick Wins Southwest Levorsen

Martin Selznick, with Rosewood Resources in Dallas, has been named winner of the Southwest Section's A.I. Levorsen Award for the best paper at the recent annual Section meeting.

Selznick's paper was "Seismic Attribute: So Many Tools, So Little Time."

He will receive his award at the next Southwest Section meeting, set June 5-7 in Ruidoso, N.M.

IN MEMORY

- John S. Berge**, 82
 Arvada, Colo., April 24, 2010
- John Frederick Burst Jr.** (EM '56)
 Rolla, Mo.
- Nance G. Creager** (EM '51)
 Midland, Texas
- Robert Hugh Forde**, 71
 Houston, February 2007
- Mark Conrad Leach**, 50
 Tulsa, April 14, 2010
- Robert Ramsey McConnell**
 (AC '55) Houston
- Robert W. Meader**, 81
 Centennial, Colo., July 27, 2009
- Billy Jan Morris**, 69
 Rockwall, Texas, April 13, 2010
- David D. Reimers**, 66
 Houston, May 18, 2010
- John Hoffman Wappler**, 81
 Gretna, La., March 20, 2010

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

Members, save US \$175 when you register before 10 August!



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- 12-15 September, AAPG ICE technical program, exhibition and more
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- 16-17 September, CSPG core conference
- 16-20 September, post-conference short courses and field trips

For fastest service, register online at www.AAPG.org/Calgary





Herman Darman (left) and Anwar Al-Beajji at the AAPG booth in Bucharest, Romania, during the first International Geoscience Student Conference.

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| Oct. 18 - Oct. 22 | Overview of Seismic Exploration |
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First IGSC a Winner

More than 240 students from 13 countries attended the first International Geosciences Student Conference, held recently in Bucharest, Romania – a three-day event that featured poster presentations, industry interviews, guest speakers, a field trip and networking opportunities.

AAPG co-sponsored the meeting, along with EAGE and SEG. Among the keynote speakers was AAPG representative Herman Darman, from Shell Netherlands.

Hopkins from page 32

concedes, "will be considerably more than for Phase I, but I think it is worthwhile."

For both the student and Hopkins himself.

What's Past is the Future

Though retired from active oil and gas management at Suemaur Exploration, Hopkins said the two programs – Maps in Schools and Bones in Schools – continue to add to his knowledge of what he calls the "continuing saga of the oil business."

"I can tell that I must miss the excitement of generating a new idea and the heart pounding thrill of deadlines and meetings and wells logging, because I am approaching my CCGS Educational Program like an oil deal," he said. "My own, self-imposed goals and deadlines have been putting, possibly, undue stress on me. That is how I have learned to attack projects – spend some time assessing if the project is needed, then forge a plan and blaze ahead to completion."


What's new, he says, is that while the drive may be the same, the turf is more winnable, more rewarding.

"But unlike oil/gas prospects, I do not have to wait until we have all the leases," he said.

Instead, he now bases his success on how many kids get excited about science.

Has it worked? Have students caught Hopkins' fever for both the topic and the future of geology?

One answer may be found on the area's geological website (www.cgeo.org), where there are scores of student testimonials. A fifth-grader, in particular, wrote something that should make the schlepping of all those maps and bones into classrooms worth it for Hopkins.

"I want to be a geologist when I grow up," the student wrote. "You taught me a lot of stuff." 

CALL FOR ABSTRACTS

Submit your abstract online before 23 September 2010

MAKING THE NEXT GIANT LEAP IN GEOSCIENCES



AAPG 2011 Annual Convention & Exhibition

American Association of Petroleum Geologists with SEPM (Society for Sedimentary Geology)

10-13 April 2011 | George R. Brown Convention Center | Houston, Texas, USA

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

THEME 1: Molecules to Marketplace: The Business of Energy

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

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

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

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

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

THEME 4: Challenged Resource Frontiers

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

THEME 5: Mudstones and Shales: Unlocking the Promise

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

THEME 6: Siliciclastics: Advancing Research to Resource

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

THEME 7: Insight into Carbonates and Evaporites

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

THEME 8: Breakthroughs: Tectonics, Salt and Basin Analysis

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

THEME 9: Integrating New Technology, Geophysics and Subsurface Data

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

THEME 10: Energy and Environmental Horizons

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

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

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



www.AAPG.org/Houston2011

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

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

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August 4th – 8th
Nichols Auditorium, Casper College, Casper, WY

August 4th

One Day Short Course: Appraising and Developing Shale Gas
Reservoirs by Creties Jenkins of DeGolyer & MacNaughton

August 5th & 6th

Technical Sessions: Topics include Shales, Pipelines, Geocellular
Modeling, Uranium, Wind, and Hydrothermal

August 7th & 8th

Field Trips to Mowry and Niobrara Outcrops & Unconventional
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See www.wyogeo.org for registration information

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Be at the Epicenter...

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**Interested Companies and Students see:
www.csun.edu/geology/aapg-seg.htm
for registration information**

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

Arizona

Hunt, William Allen, Closson, Hunt & Taylor Ltd., Phoenix (M.D. Campbell, B. Handley, H.M. Wise)

California

Doris, Nelson P., Warren E & P, Long Beach (M.R. Doris, C.P. Henderson, J.M. Henderson)

Louisiana

Kienzle, Jack Kenneth, U.S. Minerals Management Service, Covington (G.J. Rutherford, G.H. Hasseltine, A.R. Friedmann)

Missouri

Pope, John Paul, Northwest Missouri State University, Maryville (F.E. Oboh-Ikenobe, R.J. Gentile, R.R. Anderson)

New Mexico

Staatz, Thomas Mortimer, Jet West Geophysical Services, Farmington (G.L. Gianniny, K. Miskell-Gerhardt, J.W. Brame)

Oklahoma

Brulet, Benjamin Rhodes, Chesapeake Energy, Edmond (R.L. Snyder, J.P. Dube, M.A. Cervantes)

Texas

Buse, William Lee, Texon Oil & Gas, Houston (J. Casey, W.R. Dupre, J.M. Robinson); Doss, Eric Alan, XTO Energy, Houston (A.G. Barriault, C.W. Cook, L.G. Miller); Jansen, John F., Tribal Knowledge Solutions, Sugar Land (M.K. Milner, E. Von Lunen, R.U. Dolfi); Johnston, Paul J., BP America, Houston (D.G. Derbecker, B.E. Wagner, P.N. Trumbly); Riley, Mathew Ellis, XTO Energy, Fort Worth (T.H. Stark, R.K. Gray, C.A. Burshears)

Washington

Thompson, Rodney Oliver, Hanley Petroleum Inc., Bellevue (reinstatement)

West Virginia

Moore, James Henry, Columbia Gas Transmission, Charleston (S.S. Holsclaw, K.L. Haddad, R. Smosna)

Australia

Bray, Timothy Paul, Roc Oil Company Limited, Sydney (S.R. Greaves, D. Garrad, L.E. Farmer); Lengenber, Ashley Peter, AIPC, Moffat Beach (D.L. Walding, S.Z. Jovanovic, F. Simoncelli)

Bahrain

Al-Radhi, Somaya Hasan, Schlumberger, Manama (A.M. Al-Beaiji, H.M. Al-Otaibi, V.G. Soneji)

Canada

Bailey, Dennis David, CL Consultants Ltd., Calgary (reinstatement); Chalmers, Gareth Raymond, University of British Columbia, Vancouver (R.M. Bustin, L. Chikatarla, A.P. Beaton)

Egypt

Abd ElRazek, Raafat Rezk, Melrose Resources Egypt Companies, Cairo (N.M. Tewfik, M.M.H. Said, T.F. El Azhary)

Here's a reminder from the AAPG membership department:

Keep your membership current – pay your 2010-11 dues now.

It's fast and easy to do. You can:

▶ Do it online, at the Members Only section of www.aapg.org.

▶ Do it by telephone, by calling AAPG today at (800) 364-2274, or (918) 584-2555.

England

Adebulehin, Adedayo A., Nexen Petroleum UK Limited, London (K.J. McLachlan, M. Ala, K.A. Hosein)

Hungary

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Mishra, Prasanta Kumar, Kuwait Oil Company, Ahmadi (S.S. Thakur, K. Ahmad, S.A. Azim)

Malaysia

Chun Hock, Tan, Kuala Lumpur (J.J. Lambiasi, J.K. Warren, H.P. Lee)

Nigeria

Abubakar, Usman, Nigerian National Petroleum Corp., Lagos (M.D. Bako, D.S. Sejebor, B.B. Olafisan); Bola, Adelanke Gregory, Nigerian National Petroleum Corp. NNPC-NPDC, Benin (F.O. Ogboi, E.O. Adeniyi, A.T. Adelaja); Chukwuka, Clement Amaechi, Chevron Nigeria Limited, Lagos (A.R. Ojelabi, A.O. Esan, A.O. Ekun); Mohammed, Yahaya Jibril, Baker Hughes, Lagos (F.P. Hearn, T.L. Wright, K. Yared); Ogboko, Osim Jethro, Subsurface Consultants Nigeria, Port Harcourt (reinstatement)

Norway

Kvadsheim, Erling, OLF Norwegian Oil Industry Association, Stavanger (G. Lunde, I. A. Kjorlaug, K. Lokna)

Pakistan

Zaidi, Syed Adnan Haider, OGDCL Pakistan, Islamabad (T.M. Jaswal, M.H. Channa, M. Ahmed)

People's Republic of China

Li, Sanzhong, Ocean University of China, Qingdao (F.X. Jian, J. Jin, W. Zhao)

Poland

Nazaruk, Dariusz Michal, Oman Oil Company E&P, Dabrowa Gornicza (H. Darman, J.F. Boels, G.O. Kakayor)

Certification

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

Petroleum Geologist

Oklahoma

Howell, James R., Weatherford International, Edmond (Society of Independent Professional Earth Sciences)

Texas

Robert B. Hanks, BTO Venture Inc, Iowa Park (reinstatement); Maxwell, Wayne J., W.J. Maxwell Consulting Inc., Spring (reinstatement)

2010 Open Enrollment Course Schedule

Rose & Associates

Risk Analysis, Prospect Evaluation & Expl. Economics

| | |
|--------------------|-----------------------|
| *Denver, Colorado | August 16 – 20, 2010 |
| Calgary, Alberta | October 4 – 8, 2010 |
| Aberdeen, Scotland | October 4 – 8, 2010 |
| Houston, Texas | October 18 – 22, 2010 |

Risk and Uncertainty Analysis for Unconventional Resource Plays

**Houston, Texas June 8 – 9, 2010

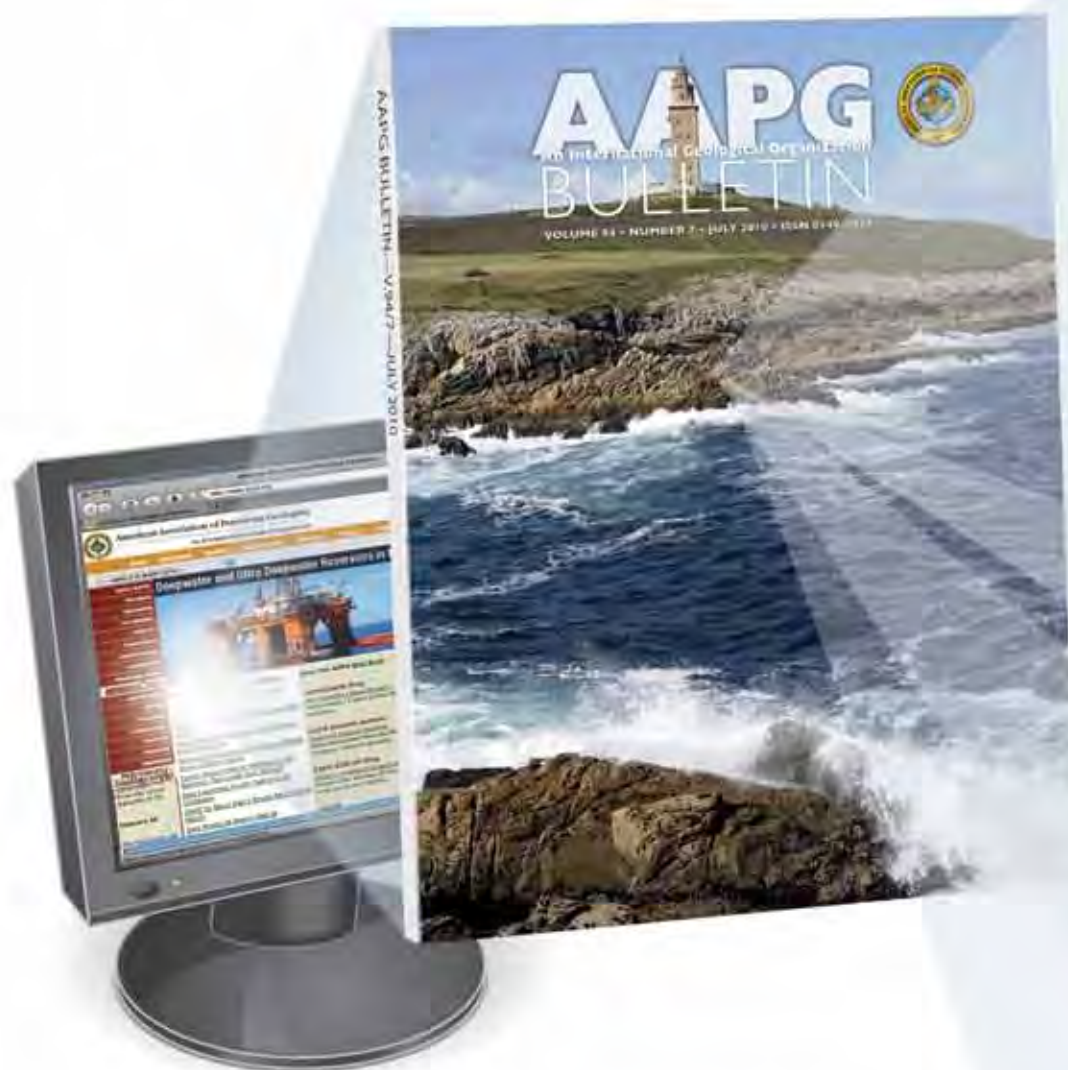
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www.aapg.org/july_bulletin

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Article highlights include:

Reducing exploration risk in NW China

Qilin Xiao, Sheng He, Zhi Yang, Zhiliang He, Wang Furong, Shuifu Li, and Daqing Tang



Basin modeling methods are used to investigate the timing of petroleum generation, migration, and accumulation and to analyze the processes of petroleum secondary migration and preferential accumulation. This modeling aids in prioritizing favorable play types.

Salt and extensional systems

Suzan Jammes, Gianreto Manatschal, and Luc Lavier



Prerift Triassic evaporites that interacted with extensional processes associated with detachment faulting permit the study of extensional detachment systems. In later stages, windows of exhumed basement surrounded by extensional allochthons were formed by supra-salt sedimentary units.

Extensional basin systems

E. Frankowicz and K. R. McClay



Extension oblique fault systems produce en-echelon segmented extensional faults without major strike-slip deformation in the overlying sequences. The results of this research may help to better understand the distribution, segmentation, linkages, and ages of extensional faults in other rift basins.

Turbidite channels have complex routes

Mike Mayall, Lidia Lonergan, Andrew Bowman, Stephen James, Keith Mills, Tim Primmer, Dave Pope, Louise Rogers, and Roxanne Skeene



Third-order erosional channel complex systems were studied to determine their influence on slope topography. The interaction of the turbidite slope channels with the development of structurally-induced topography complicates the morphology and distribution of reservoir and nonreservoir facies.

Questions

Regarding the recent Gulf of Mexico oil spill: If the blowout was in deepwater off the coast of Nigeria, and the fisheries and beaches of Nigeria were the ones being fouled by this obvious and complete failure of well drilling safety, if the 11 dead men were Nigerians ...

Would we all be so wound up about it?

Would either BP or the government of the United States and the politicians therein blast so many tons, so many million cubic feet of gaseous rhetoric and bombast?

Do I hear any call for a rational energy policy, for reduction in fossil fuel use?

It's ALL our fault.

Ross Brunetti
Santa Maria, Calif.

It's (More) Complicated

Regarding the photograph on page 10 of the May EXPLORER (shown above), with the story on Memoir 90:

The lowermost picture (red beds and evaporites exposed in the Potosí uplift, just north of San Pablo de Tranquitas, Nuevo León) is where I've been studying deformation processes within the décollement of the thin-skinned Sierra Madre Oriental. The caption for the figure contains errors:

► Most of the red bed section belongs to the La Boca Formation (Huizachal Formation of some previous authors), not the La Joya Formation. Fossils from the La Boca Formation in the Huizachal-Peregrina anticlinorium ~100 kilometers to the southeast indicate a Late Triassic to early Middle Jurassic age, but few age-diagnostic fossils have been found in Potosí uplift.



► Only the uppermost ~25 meters of the red beds belong to the La Joya Formation. No age-diagnostic fossils have been recovered from the La Joya at any site, but the formation is typically assigned a late Middle Jurassic age. The La Joya is separated from the underlying La Boca Formation by an angular unconformity of ~15°.

► The La Joya Formation is in gradational contact with the overlying evaporites. The assignment of these evaporites to the Lower Oxfordian is pure conjecture: No age-diagnostic fossils occur within the evaporite interval. However, the basal evaporite interval does contain spectacular gypsum mylonites that attest to intense Laramide-age simple shear deformation.

► The overlying carbonates do not belong to the Zuloaga Formation, which was originally defined ~150 kilometers to the west as a thick sequence of carbonates. Only a relatively thin (<60 meters) evaporite interval occurs in the lower part of the Zuloaga. In fact, two distinct carbonate intervals are

visible in the photo, separated by a thin (~25 meter) section of evaporites with carbonate interbeds. These four members (two evaporite and two carbonate) form only the lower ~one-third of a 850-900 meter thick carbonate-evaporite sequence that includes a total of five thick (up to ~120 meters) carbonate intervals. I prefer to assign this entire carbonate-evaporite sequence to the Minas Viejas Formation, rather than arbitrarily assign one or more of the carbonate intervals to the Zuloaga.

► Poorly-preserved ammonites collected from a shaly carbonate interval within the middle part of the Minas Viejas stratigraphy have Middle Oxfordian affinities. The basal beds of the overlying La Casita Formation have late Early Kimmeridgian ammonites. This suggests a Middle Oxfordian-lowest Kimmeridgian age for the upper half of the Minas viejas Formation in the Potosí uplift. The precise age of the lower contact of the formation, however, is uncertain.

► Both the Smackover and the Zuloaga yield Middle-Late Oxfordian

ammonites. Hence, at least the upper part of the Minas Viejas evaporite-carbonate sequence in the Potosí uplift is age-equivalent to the Smackover and Zuloaga. The lower part of the Minas Viejas shown in the photo, however, has not yielded reliable age-diagnostic fossils, and hence the correlation with the Smackover cited in the caption cannot be corroborated.

In light of the above, the simple picture of rift, transitional then drift stages given in the photo caption is very much over-simplified!

Gareth Cross
Austin, Texas

Editor's note: Memoir 90 co-author Claudio Bartolini responds:

The AAPG member is right; I submitted a basic and over generalized paragraph for the picture in question. Since this is not a scientific journal, I honestly did not bother to check for the most recent and ongoing studies on the area that could refine the geological description.

The primary purpose of the EXPLORER story was to present a general overview of Memoir 90 – including, of course, the focus of the book, potential users, importance to oil and gas exploration in the Gulf of Mexico and contribution to the petroleum geology of the Mexican side of the Gulf.

We are glad to see that Mexican geology continues to attract students from U.S. universities, thus increasing the knowledge of Mexico's geology.

Claudio Bartolini
Madrid, Spain



Come Be Part Of The 'IN' Crowd!

Participate in AAPG's Geoscience Technology Workshops (GTW's)

Carbon Capture and Sequestration: New Developments and Applications, Case Studies, Lessons Learned

August 10-12, 2010 • Denver, CO

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

November 8-9, 2010 • Houston, TX

Deepwater and Ultra Deepwater Reservoirs in the Gulf of Mexico

January 18-19, 2011 • Houston, TX

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

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

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

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

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

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

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

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

Proposed Themes and Topics:

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

INFORM – DISCUSS – LEARN – SHARE • THE AAPG GTW EXPERIENCE

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

EMD: No Dues Required

By FRANK WALLES and MICHAEL CAMPBELL

Earlier this year the AAPG and AAPG Energy Minerals Division executive committees approved the elimination of a separate charge for EMD membership – a move that represents a significant new additional AAPG membership benefit.

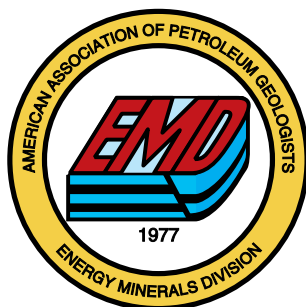
To become an EMD member, one simply needs to indicate this interest by clicking a box in their revised online AAPG profile or by checking a box on their membership renewal statement.

Becoming an AAPG EMD member allows access to a wealth of technical, geological and related information on the full range of energy resource commodities.

This information is made available within each EMD Commodity webpage, and also is searchable by AAPG's *Search and Discovery* database and the EMD's Web Portal, which serves to integrate the exploration and development of the EMD commodities with the associated Division of Environmental Geosciences technical information on environmental geosciences, as well as the professional and ethical considerations involved in the Division of Professional Affairs.

Come see what EMD is all about – it's now no cost with your AAPG membership.


EMD was created by the AAPG in 1977, specifically to provide technical geological information on energy resources ranging from uranium, coal and geothermal energy and to "unconventional" energy resources that now range from coalbed methane to gas



hydrates, gas shales, tight gas sands, oil sands and oil shales.

Many of these energy resources (not "conventional" oil and gas resources) have now become important resources in the U.S. energy picture and deserve careful attention by a currently realized large portion of the geological community that belongs to the AAPG. Hence the basis for the removal of the dues structure for the AAPG Energy Minerals Division.

These energy resource fields are technically challenging to explore and exploit efficiently and require additional significant levels of scientific characterization and exploitation technology not normally utilized in conventional hydrocarbon exploration.

The AAPG Energy Minerals Division helps to provide and fill this need for advanced technical information, either in the form of literature and publications or short-courses and organizational support of conferences and sessions such as provided by the annual and regional AAPG conferences, as approved by the AAPG leadership. 

Opportunities in Carbonate Oil and Gas Reservoirs

Institute of Petroleum Engineering at Heriot-Watt University is seeking outstanding candidates for two senior positions:



CHAIR IN CARBONATE RESERVOIR SIMULATION

Minimum £53,918 (funded by CMG Foundation for 5 years in the first instance)

You will have an international reputation in the field of reservoir simulation with an interest in, and experience of, modelling of carbonate reservoirs. With a strong research vision, you will clearly be contributing to strategic advances in the field of reservoir modelling and simulation. You will be expected to lead and build a growing multi-disciplinary team, and will have already demonstrated an ability to attract research funding in this field. **Ref: 88/10/AAPG**

SENIOR LECTURER IN CARBONATE PETROPHYSICS

£45,156 - £52,346

An experienced petrophysicist in the development of new interpretation techniques, you will have a good grasp of modern formation evaluation techniques; NMR, Image log and modern directional array tools. You will also lead the teaching team in Formation Evaluation and Laboratory Petrophysics. You will be expected to make strong contributions towards the petrophysical interpretation of carbonate rocks.

Both posts will work with the ICCR (International Centre for Carbonate Reservoirs), a major new joint research programme between Edinburgh and Heriot-Watt Universities that aims to establish a world-leading centre of excellence in all aspects of carbonate reservoirs. **Ref: 89/10/AAPG**

Interested candidates should contact Prof. Patrick Corbett (patrick.corbett@pet.hw.ac.uk) for more information on either post.

Download an application pack from our website or contact Human Resources, Heriot Watt University, Edinburgh EH14 4AS. Tel: 0131 451 3475 or email: hr@hw.ac.uk quoting appropriate reference.

Closing date: 3rd September 2010.

Heriot-Watt University is a Charity registered in Scotland, SC000278



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The internationally leading Geosciences Group in the School of Civil Engineering and Geosciences is expanding its capabilities in unconventional geoenergy. The group has a long-standing, global reputation for its work in Petroleum Geochemistry and Geoscience, and has over the last few years developed a portfolio of novel research into heavy oil, shale gas, oil shales, geothermal energy and CCS.

We are now looking for an individual to develop a strong research programme into the production of cleaner, unconventional geoenergy; this includes unconventional petroleum, coal, CCS and geothermal. The scope of the position is relatively open and we are looking for a talented and enthusiastic scientist to help develop new opportunities. You might have interests in fluid geochemistry, gas adsorption and storage, chemical sensors, fluid flow, petrophysics, geomodelling or geomechanics; whatever your specific expertise, we anticipate that you will seek to build a collaborative research programme with our team of geoscientists, chemists, biologists and engineers.

You will contribute to our MSc programmes in Petroleum Geochemistry and Geoscience for Subsurface Exploration Appraisal and Development (GeoSEAD; joint with Heriot Watt and Edinburgh Universities) and will help develop new themes at Masters and PhD level. You should hold a PhD in a relevant discipline, have a record of publication in the highest quality journals and a proven track record in supporting a programme of externally funded research. The balance of these attributes will vary according to a candidate's background and the level of appointment.

Further information can be obtained from the School website: <http://www.ceg.ncl.ac.uk/>

Informal enquires may be directed to Professor Andrew Aplin (e-mail: a.c.aplin@ncl.ac.uk).

Please apply online at <http://www.ncl.ac.uk/vacancies/>

Job reference: D729A.

Closing date: 23 July 2010.



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UPCOMING REGIONAL WORKSHOPS

JULY 2010

7/6 **Rocky Mountain:** Risk and Uncertainty Analysis for Unconventional Resource Plays (Energy Epicenter RMAG/COGA) – Denver, CO.

7/8-9 **Midcontinent:** Reserves Estimation in Unconventional Reservoirs – Tulsa, OK.

7/10 **Rocky Mountain field trip:** Niobrara Formation Field Trip, Northern Colorado Front Range: An Outcrop Analog for Shale Gas Resource Plays Throughout the U.S. (COGA/RMAG) – Denver, CO.

7/21 **PTTC HQ:** Risk-Based Data Management, Sec. 999 (RPSEA) Small Producer, Stripper Well Consortium – Dallas, TX.

7/22 **PTTC HQ:** Risk-Based Data Management, Sec. 999 (RPSEA) Small Producer, Stripper Well Consortium – Oklahoma City, OK.

7/27 **West Coast:** Water Shut-off and Conformance Control – Long Beach, CA.

7/28 **West Coast:** Water Shut-off and Conformance Control – Bakersfield, CA.

AUGUST 2010

8/3 **PTTC HQ:** Mining Online Technology Information (DOE's Knowledge Management Database, plus Others) and PTTC Problem Identification – Dallas, TX.

8/4 **PTTC HQ:** Mining Online Technology Information (DOE's Knowledge Management Database, plus Others) and PTTC Problem Identification – Oklahoma City, OK.

8/10-12 **AAPG/PTTC GTW:** Carbon Capture & Sequestration: New Developments and Applications, Case Studies, Lessons Learned – Golden, CO.

8/13 **PTTC HQ:** Mining Online Technology Information (DOE's Knowledge Management Database, plus Others) and PTTC Problem Identification – Denver, CO.

For further information, view PTTC's online calendar at www.pttc.org/national_calendar.htm

**FACULTY POSITION IN GEOPHYSICS/SEISMOLOGY
CONOCOPHILLIPS SCHOOL OF GEOLOGY AND GEOPHYSICS
MEWBOURNE COLLEGE OF EARTH & ENERGY
THE UNIVERSITY OF OKLAHOMA**

The University of Oklahoma invites applications and nominations for a tenure-track or tenured faculty position in applied geophysics. The rank is open, from Assistant through Associate to Full Professor levels. Exceptionally well qualified applicants may be appointed to an endowed Professorship.

The successful candidate is expected to add significantly to the University's long-standing petroleum geophysics and geology education and research programs. The successful candidate must have an excellent, demonstrated research record in relevant areas such as exploration geophysics or crustal seismology, and is expected to establish and lead a strong multidisciplinary research program. The position includes many opportunities to work closely with geophysical, geological, and engineering colleagues within the Mewbourne College of Earth and Energy. Our preferred applicant will have demonstrated, hands-on expertise in 3D seismic processing, seismic imaging, seismic modeling and/or seismic tomography. Experience in field data acquisition is a plus. The candidate will be required to supervise M.S. and Ph.D. graduate students pursuing a career in the exploration industry, and must also be an excellent educator, with commitment to both undergraduate and graduate (M.S. and Ph.D.) education. A Ph.D. degree in geophysics or a closely related field is required. Salary and benefits will be competitive and commensurate with experience and anticipated potential.

The Mewbourne College of Earth & Energy possesses extensive industry-standard software and well-equipped and maintained computing labs for seismic reflection processing, analysis, and interpretation on both PC and LINUX platforms as well as seismic refraction data analysis and rock properties laboratory facilities. Excellent field equipment for seismic and potential studies is also available. Additional information about the College and the entities that it houses can be found at <http://mcee.ou.edu>.

Review of candidates will begin April, 2010 and continue until the position is filled. The anticipated starting date is as soon as possible during the 2010-2011 academic year. Applicants are requested to submit a complete vita/resume, statement of research and teaching interests, and a list of five references who can be contacted, including names, phone numbers, e-mail addresses, and complete mailing addresses. Questions or requests for additional information and nominations may be addressed to Dean Larry R. Grillot at (405) 325-3821, or lgrillot@ou.edu. Applications should be addressed to Dean Grillot at: University of Oklahoma, Sarkeys Energy Center, 100 E. Boyd Street, Room 510, Norman, OK. 73019-1008.

The University of Oklahoma is an Affirmative Action, Equal Opportunity Employer. Women and Minorities are encouraged to apply.

**ENDOWED FACULTY POSITION IN PETROLEUM GEOSCIENCE
CONOCOPHILLIPS SCHOOL OF GEOLOGY AND GEOPHYSICS
MEWBOURNE COLLEGE OF EARTH AND ENERGY
UNIVERSITY OF OKLAHOMA**

The University of Oklahoma invites applications for the position of Associate Professor/Professor in petroleum geosciences. Depending on experience and qualifications, the successful candidate will be appointed as a tenured Associate or Full Professor in an endowed Professorship or Chair in the School of Geology and Geophysics, and is expected to add significantly to the University's petroleum geology/geophysics education and research programs. Applications are being solicited from both academia and industry.

The successful candidate must have a demonstrated research record and the vision to establish and lead a strong multidisciplinary research program in petroleum geology, or a closely related discipline. This includes the opportunity to work closely with the Mewbourne School of Petroleum and Geological Engineering and the Oklahoma Geological Survey to investigate concepts, tools and methodologies to better define, characterize and manage oil and gas reservoirs. A qualified applicant should have demonstrated expertise in a range of geoscience technologies. The ideal candidate will also have experience in using these technologies to define and better understand geological features of economic interest, and should be an excellent educator with commitment to both undergraduate and graduate (M.S. and Ph.D.) education. A Ph.D. degree in geology or a closely related field is required. Salary and benefits will be competitive and commensurate with experience and anticipated potential.

The Mewbourne College of Earth and Energy possesses extensive industry-standard software, along with well-equipped and maintained computing labs for geological and geophysical mapping, analysis and interpretation, as well as rock properties/characterization laboratory facilities. Additional information about the College and the entities that it houses can be found at <http://mcee.ou.edu>.

Review of candidates is currently ongoing, and will continue until the position is filled. The anticipated starting date is as soon as practical. Applicants are requested to submit a vita/resume, statement of research and teaching interests, and a list of five references who can be contacted, including names, phone numbers, email and complete mailing addresses. Questions or requests for additional information may be addressed Dean Larry R. Grillot, Chair of the Geosciences Search Committee, at (405) 325-3821, or lgrillot@ou.edu. Applications and nominations should be addressed to Geosciences Search Committee, University of Oklahoma, Sarkeys Energy Center, 100 E. Boyd Street, Room 510, Norman, OK 73019-1008.

The University of Oklahoma is an Affirmative Action, Equal Opportunity Employer. Women and Minorities are encouraged to apply.

DPA
from page 43

Mary Harris, Larry Jones, Sarah Jones, Pete MacKenzie, Dan Smith and Gerrit Wind. (See related story, page 31.)

* * *

Finally, I wish to welcome the newly elected councilors and alternates (term 2010-13):

- Mid-Continent – Joel A. Alberts (councilor) and David Tschopp (alternate).
- Southwest Section – Gregg A.

CLASSIFIED ADS

POSITION AVAILABLE

**Petroleum Exploration Geologist
Newfield Exploration
Tulsa, OK**

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

The successful applicant will generate and update maps, logs, cross-sections and corporate databases with new tops, correlations, shows and other pertinent geological data. Develop regional, multi-county stratigraphic framework and subsurface correlations.

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

Vice President Exploration & Geology- Fluent in Spanish/English Based in Santa Barbara CA- Lead Latin America division of International O&G Company. Degree - willingness to travel to Latin America. Proven international exploration experience with multiple basins. Background in geology & geophysics. \$188,000-\$224,000 + bonus/stock - e-mail resume in confidence to: kathi@whalenbryan.com

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

The Exploration Geophysics Laboratory (EGL, <http://www.beg.utexas.edu/indassoc/egl/index.htm>) is currently seeking applicants for a RSA III position. The successful candidate will possess proficiency and knowledge to support multi-component seismic data research activities of the Exploration Geophysics Laboratory. Candidates must have a Master's degree in geosciences or related field, and 3 plus years experience, or Bachelor's degree and 6 years of relevant experience.

Please refer to: <http://utdirect.utexas.edu/pnjobs/index.WBX> (posting # 100602014209) for a full description and requirements of each position and for instructions on how to apply.

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

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

The Exploration Geophysics Laboratory (EGL, <http://www.beg.utexas.edu/indassoc/egl/index.htm>) is currently seeking applicants for a Geophysicist position. The successful candidate will conduct research in collecting, processing, and interpreting multi-component seismic data in unconventional resource, geothermal, and CO2 sequestration studies. Candidates must have a PhD in Geophysics, or Master's degree with at least 5 years relevant experience. Experience in multi-component seismic technology and the ability to write software code.

Please refer to: <http://utdirect.utexas.edu/pnjobs/index.WBX> (posting # 100602010708) for

Norman (councilor) and David Entzminger (alternate).

► Gulf Coast Section – William R. Meany and Stewart Chuber (councilors), and Timothy J. Bennett and Chandler Wilhelm (alternates).

As incoming DPA president I look forward to an exciting and positive year. I am confident that our officers, councilors, alternates and members will offer their support to reach our goals and provide benefits to our members.

I wish to thank Paul Britt – president and the entire Executive Committee for their leadership during the past year. Thanks for a job well done. ☐

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MISCELLANEOUS

Party Celebrating Dr. Wayne's World

Dr. Wayne Pettyjohn, professor emeritus, Oklahoma State University holds the record for most piezometers (43) at a residence. Aside from training graduate students and professionals, Wayne provided a course that retooled approximately 1300 professionals from the petroleum industry to the water industry to provide employment from the oil bust during the 1980's. Due to the vagaries of federal rules, we do not have a list of these geologic professionals. However, we would like to have a party in honor of Wayne on Oct 1st, 2010 in Stillwater, Oklahoma. If you were a student or friend of Wayne's and would like to attend our celebrations of his career, please contact Todd Haihan at todd.haihan@okstate.edu or OSU School of Geology, 105 NRC, Stillwater, OK 74078 for more information.

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Just write out your ad and send it to us. We will call you with the word count and cost. You can then arrange prepayment. Ads received by the first of the month will appear in the subsequent edition.

DIRECTOR'S CORNER

AAPG – Evolving in a Full Sprint

By RICK FRITZ, AAPG Executive Director

I love the saying, “You can’t make footprints in time sitting down.”

As I approach the end of my tenth fiscal year, I muse that we certainly have not sat down for the past 10 years. In fact, in some cases the footprints would leave no heels, as we were running!

* * *

For the last issue of the HoD Delegates’ Voice I was asked to write about the significant changes I have seen to AAPG over the past decade. The most basic change is the number of new programs that have been added by members and staff. For example:

► In **science** AAPG has added the digital BULLETIN, Datapages, *Search and Discovery* and the GIS program, plus our joint association with GSW – GeoScience World.

► **Membership** also has seen significant change.

✓ Through the Executive Committee, Advisory Committee and the House of Delegates, new rules and procedures have improved and streamlined the membership process, including joining and paying dues online.

✓ Many members are now taking advantage of AAPG’s graduated dues program.

✓ Halliburton’s, and now Chevron’s, sponsorship of students has rapidly increased this member category.

✓ The new Corporate and Business committees are building new bridges into companies and countries.



FRITZ

The overarching change is global development. This path was made clear in the strategic plan developed by AAPG leadership earlier this decade.

► In the area of **communications**, the website has been significantly improved and expanded. Many informational documents are now readily available that were not available before. The EXPLORER is now available online, and for public outreach we have added petroleumgeology.org.

► Considering **conferences**, AAPG was conducting only official annual conference and exhibition (ACE) 10 years ago, and we would add the international conference and exhibition (ICE) when there was opportunity. Now we hold ICE on a regular basis – plus APPEX London is an annual event. The European Region regularly holds an annual meeting, and the other Regions are contemplating regular meetings like the Sections.

However, the real growth has been in joint meetings with our sister societies. At the start of this decade our only regular joint society meeting was OTC. Currently, AAPG participates in NAPE, GEO-Middle East, GEO-India, IPTC, 3-P (Polar Petroleum Potential) and most recently, we’re now managing the new Arctic

Technology Conference for OTC.

► The **Education and Research committees** continue to develop new program content. Now we also offer Geoscience Technology Workshops and e-Symposiums. Also new, AAPG now has oversight responsibilities for the Petroleum Technology Transfer Council.

► **Headquarters** has changed significantly as well. New staff, new advanced software, and procedures and policies are significant improvements.

There are many other new programs I have not mentioned, such as our **Career Services** program, and the **Divisions**, which have significantly increased and improved their offerings during the past 10 years.

The overarching change is global development. This path was made clear in the strategic plan developed by AAPG leadership earlier in this decade. It is important that this plan was not designed to forget our “roots” in the United States but rather to use the strength of the organization that was built by past AAPG

members to plant “new roots” and grow around the globe so that we can provide better science and new opportunities.

The **AAPG Foundation** also has experienced significant change – raising almost \$30 million to support current programs and new opportunities. Most importantly the leadership and staff of the Foundation have developed a culture of giving that will continue well into the future.

* * *

Plutarch once said that “Time is the wisest of all councilors.” We have learned a lot in the past 10 years, and AAPG continues to evolve for the benefit of its members and the general public.

The reality is, it’s hard to place a finger on one “change” that has made AAPG different. It is rather an evolution of ideas from AAPG members and staff. Each AAPG president and Executive Committee brings new ideas to build and grow AAPG. The same is true of the Divisions and standing committees.

This is what keeps AAPG fresh and new.

Geoscientists are never short of new ideas – and we look forward to the next great one.

DIVISIONS' REPORT

Ethics, professionalism crosses all borders

Expanding DPA's International Presence

By DANIEL J. TEARPOCK, DPA President

AAPG's Division of Professional Affairs has been spreading its mission of “Ethics and Professionalism” for 45 years. The DPA is proud to play its part in the education and development of petroleum geoscientists.

As we move into the new fiscal year beginning July 1, we plan to build on the shoulders of the many great officers, councilors and members who have come before us.

As DPA president (2010-11), international growth will be one of my key goals for this coming year. This means expanding our presence within AAPG's six global regions (Canada, Latin America, Europe, Middle East, Africa and Asia-Pacific). After all, as with geology, Ethics and Professionalism does not stop at a country's border – a strong code of ethics and professionalism is a central component to international petroleum geoscience activities.

In order to accomplish this challenging goal we are first making a DPA Bylaws change in order to obtain more representation internationally in the ranks of the DPA council. This change will allow the DPA to have at least one councilor and alternate in each of the six AAPG regions.



TEARPOCK

We plan to work closely with the presidents of each Region to help us define council candidates who possess a passion to promote the DPA within the various regions. In addition, we look to the Region

presidents to provide us with their valued assistance to make this challenging goal a reality for the DPA and AAPG.

We also plan to work with the International Regions Committee (IRC) that is co-chaired by Marty Hewitt and Peter Lloyd.

Recently, the European Region appointed a new AAPG divisions' liaison, Jeff Aldrich. I am confident that Jeff will provide invaluable assistance in supporting the DPA's international growth goal.

* * *

In order to bring value to the DPA membership in the United States we plan to engage our councilors and alternates

to work closely with regional societies to offer continuing education courses and luncheon seminars on ethics, professionalism and special technical topics.

We also plan to participate at each of the AAPG Section meetings, as well as the AAPG annual and international conventions.

I encourage any DPA member who recognizes the need for one of DPA's activities in your area to please contact your councilor, Norma Newby at AAPG headquarters, or me.

Grassroots participation by DPA members is an effective way of identifying local opportunities for the DPA to support and bring value to its members.

* * *

During the past year DPA hosted a Town Hall meeting in Oklahoma City. We hope to host additional Town Hall meetings in the coming year, and I strongly recommend that each DPA councilor and alternate consider the possibility of hosting a Town Hall meeting in your area.

Town Halls provide an additional



opportunity for the DPA to bring value to its local members – and present to potential new members the DPA legacy, current activities and overall benefits of DPA membership.

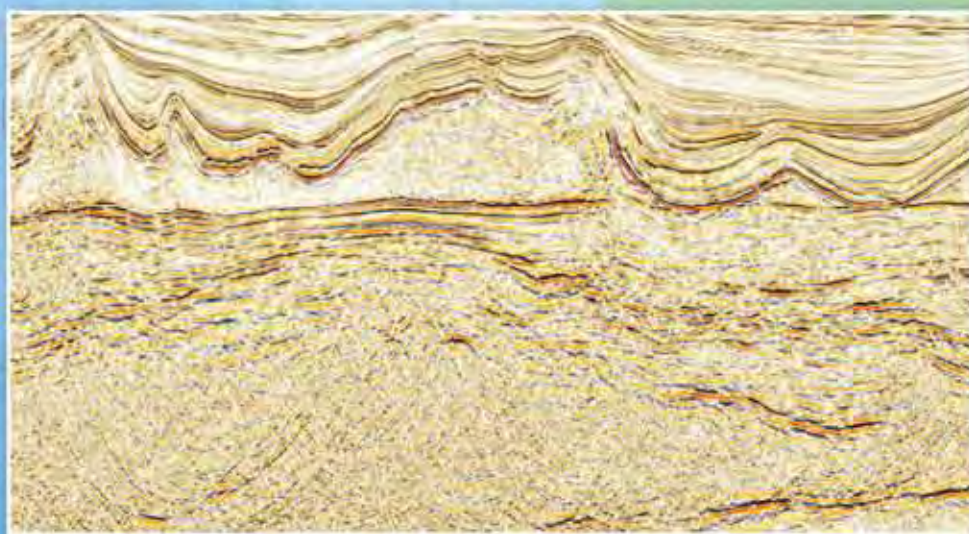
AAPG and DPA members meet twice a year in Washington, D.C., to meet with congressional staff. The most recent meeting was held May 10-12. Over two days, they met with agencies and congressional staff talking about the role of energy in the economy and work force, the need for access to land for E&P and the importance of federal oil and gas R&D.

Led by DPA Governmental Affairs Committee chair **Deborah Sacrey**, the delegation included **Paul Britt**, **Ross Clark**,

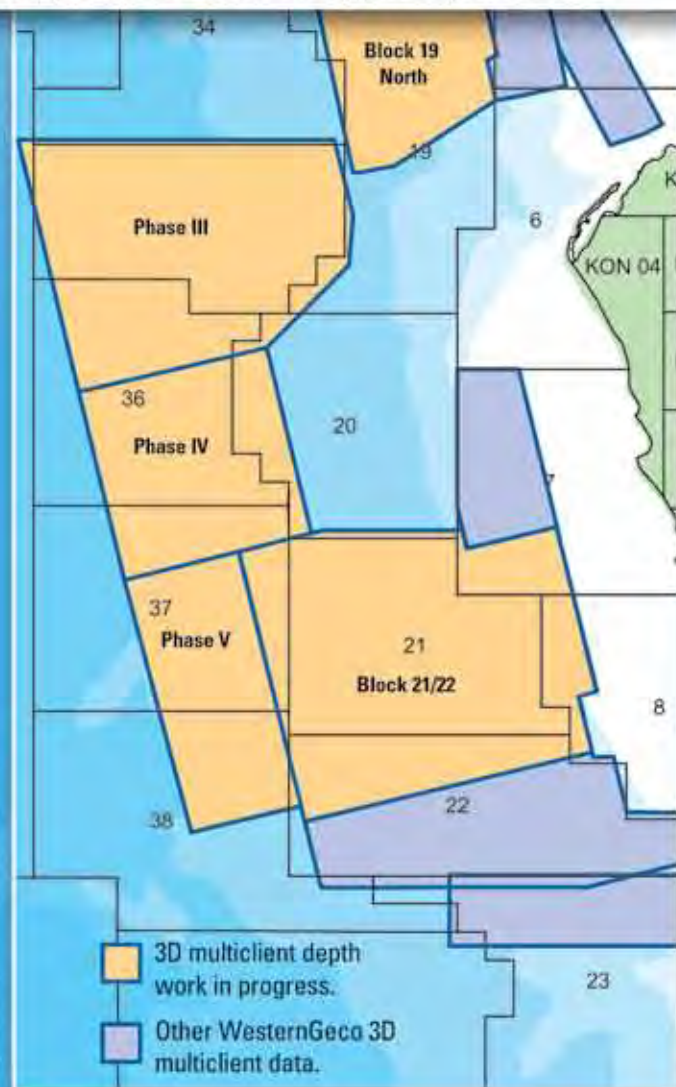
See DPA, page 42

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