AAPG AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, AN INTERNATIONAL ORGANIZATION

EXPLORER

JUNE 2008

ROCKY MOUNTAIN ROUNDUP

Encore Performance?

Utah's once again in the industry spotlight

See page 16

AAPG EXPLORER

On the cover: A familiar, classic angular unconformity at the mouth of Utah's Salina Canyon in central Utah's Sevier County, showing Jurassic Twist Gulf formation steeply tilted to overturned on the east flank of the Sanpete-Sevier Valley anticline, which developed in the Late Cretaceous by eastward compression of the Sevier thrust belt – an example of the complex geology that is challenging explorationists yet promising so much potential in this booming region. See story, page 16. Photo by Grant C. Willis of the Utah Geological Survey.

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PRESIDENT'Scolumn

'07-08 Was a Tenure Of Advancing Goals

By WILLARD 'Will' GREEN

June 30 will mark the completion of the current AAPG fiscal year, so it's time to review the progress we have made toward the 13 goals adopted by the Executive Committee on July 1, 2007.

GOALS
(And results)

✓ Move the annual Leadership Conference from February back to August, to more closely coincide with new terms of officers/leaders.

The Leadership Conference was held August 17-19 at Keystone, Colo., with a record 205 attendees meeting in a pleasant atmosphere surrounded by mountains.

✓ Extend the life of the AAPG/DPA Geoscience and Energy Office (GEO-DC) beyond its presently authorized existence (6/30/08).

GEO-DC has proven to be effective in communicating AAPG positions to government officials and in bringing important issues to AAPG members (see related story, page 56).

On April 23 the Executive Committee voted to extend the life of the office to June 30, 2011, contingent on annual review of impact and clearly defined metrics.

✓ Continue the development of the proposed programs of the Petroleum Education and Research Consortium: Petroleum Grants for Geoscience (Petrogrant), Petroleum Professionals of Practice and Chair of Petroleum Geoscience.

The Corporate Advisory Board has approved proceeding with the Petrogrant program. We are in the process of surveying selected corporations to determine the level of support we can expect from industry for Petrogrant. We are continuing to research the feasibility of the other two programs.

✓ Complete efforts to develop a new partnership to enable the continuation of the work of the Petroleum Technology Transfer Council (PTTC) under a new organizational structure.

AAPG has assumed management of PTTC. New bylaws have been adopted and a new seven-member board, consisting of four geologists and three engineers, has been appointed by the EC.

Alignment of the Regional Lead Organizations has been changed to closely follow Section boundaries we and have planned 76 workshops for 2008.


Green

Several have been successfully completed.

✓ Complete revision of all Position Papers for posting on the AAPG Web site.

Revision of "statements" has been completed and 14 are posted on our Web site. GEO-DC has added a summary of legislation that is pertinent to the statements.

A new statement on Carbon Sequestration is in progress by the DPA Governmental Affairs Committee.

✓ Continue worldwide membership growth and expansion of services in order to become indispensable to all petroleum geologists.

– Membership is growing, but at a slow rate. Graduated dues structure is starting to boost membership. Corporate membership from PetroChina has produced 159 members. Corporate memberships from ONGC and Petronas and TNK-BP are working.

Preliminary contacts have been made with two other companies.

– An agreement for a resume and job posting service for members has been signed. It should be operational on the AAPG Web site by the time you read this article.

– A new AAPG office has been opened in Bahrain and staff hired; also, an events manager and administrative assistant have been hired for the London office.

– Nearly all meetings/conferences experienced record attendance.

✓ Accomplish a net increase of 1,000 Active/Associate members during fiscal 2007-08.

As of May 1 our total membership was 33,811, which is an increase of 1,538 over the previous year. Full members (Active, Emeritus, Life and Honorary) decreased by 188.

Eleven student chapters were added, bringing the total to 168 (83 in the United States and 85 international).

✓ Implement the graduated dues structure.

Done, and it should be a factor in increasing membership during the 2008-09 year.

See **President**, page 6

New Officers Elected

John C. Lorenz, president of Geoflight LLC Edgewood, N.M., was voted president-elect by the AAPG membership. He will serve as AAPG president in 2009-10.

Also elected were:

❒ Vice president-Sections – **W.C. "Rusty" Riese**, geoscience adviser, BP America Production Co., Katy, Texas.

❒ Treasurer – **Kay L. Pitts**, reservoir management process analyst, Aera Energy, Bakersfield, Calif.

The newly elected officers will begin their duties on July 1, serving on an Executive Committee headed by **Scott W. Tinker**, Texas State Geologist and director of the Bureau of Economic Geology, the University of Texas at Austin.

Remaining on the committee are **Edward A. "Ted" Beaumont**, who will complete the second of a two-year term as secretary; **John Hogg**, serving the second year as vice president-Regions; and **Gretchen M. Gillis**, in her second of a three-year term as AAPG Editor.

Also on the new committee is **George R. Bole**, who will assume the chairmanship of the House of Delegates. ❑

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President

from page 3

✓ Continue to simplify the membership application process.

The EC approved a simplification of the member application form. Applicants no longer are required to furnish a copy of a transcript of college credits, but must attest to the accuracy of the information submitted.

✓ Complete the Tactical Operations review cycle with review of the Communications directorate.

A committee chaired by President-Elect Scott Tinker has completed review of the Communications directorate, and recommendations were approved by the EC.

✓ Strengthen liaisons between committee chairs, committee managers and EC members.

The committee manager system has worked well, with committee managers Bill Houston, Bill Morgan, Don Clarke, Pete MacKenzie and Dan Smith doing an outstanding job of working directly with the committees. Most committees submitted reports in October and February.

The success we enjoyed this year is due to the dedication of all the committee chairs and members, committee managers and the tireless contributions by AAPG staff and the Executive Committee.

✓ Establish new committees as needed – especially the Imperial Barrel Award Committee, to build on the wildly successful competition at the AAPG annual meeting in Long Beach, Calif.

– The Imperial Barrel Award Committee was established as a standing committee and had a total of 35 university teams competing in all six Sections and four Regions. Twelve teams – 10 from Sections/Regions and two "wild cards" – competed at the recent AAPG convention in San Antonio (see related story, page 46). The experience will be valuable to the students when they enter the Energy work force.

I congratulate chair Connie Mongold and the entire committee and staff who worked diligently on the program all year.

– The new 12-member Global Climate Change Committee chaired by Priscilla Grew organized and presented a very informative and successful forum during the San Antonio convention. This very active committee already is planning a forum for the 2009 convention in Denver, and their efforts are appreciated.

– The recently appointed seven-member Global Corporate Structure Ad Hoc committee chaired by past AAPG president Marlan Downey has begun study to consider recommending a new corporate structure for AAPG that will help our growth internationally and reduce our liability when operating globally.

✓ Enjoy the camaraderie of interacting with fellow members of the world's largest and greatest geoscience organization: The American Association of Petroleum Geologists.

It's been a great year. I have enjoyed meeting with members and students in all six Sections and in London, Aberdeen, Athens, Ankara and Dubai.

The success we enjoyed this year is due to the dedication of all the committee chairs and members, committee managers and the tireless contributions by AAPG staff and the Executive Committee:

* * *

President-Elect **Scott Tinker** provided his expertise on the EC and will be president for the year beginning July 1. I wish him and the new Executive Committee a successful 2008-09 year.

Vice president-Sections **John Armentrout** (Oregon John), who made valuable contributions in thinking through complicated issues and became known as the "wordsmith" by drafting proposed motions, will be rotating off the EC. Vice President-Regions **John Hogg** (Calgary John), who was never bashful about debating an issue, will be serving the second year of his term in 2008-09.

Secretary **Ted Beaumont** was diligent about recording the minutes and accepted special assignments willingly and will remain on the EC for the second year of his term.

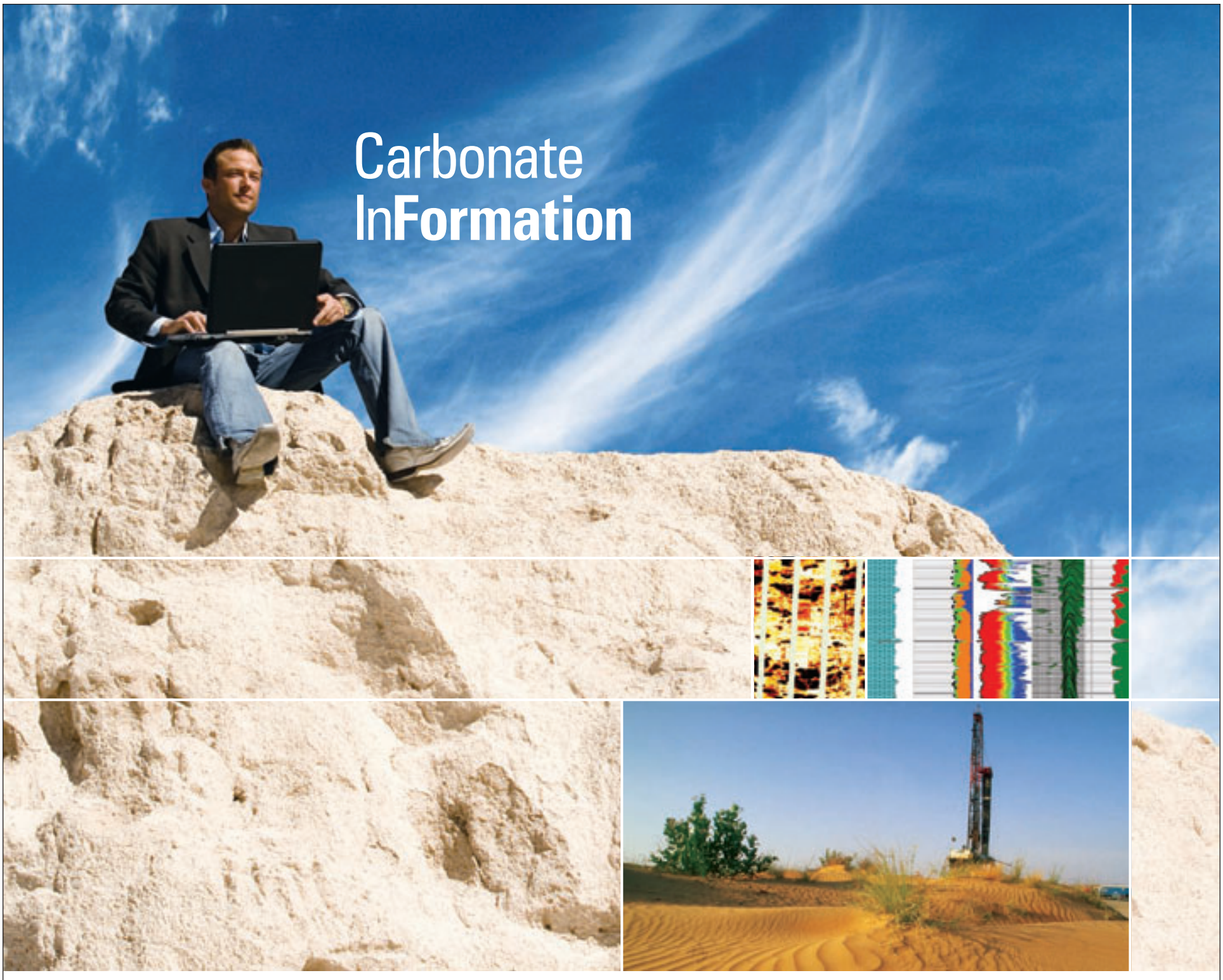
Treasurer **Randi Martinsen**, who kept the EC informed on financial matters and also accepted several special appointments, is completing the second year of her term and will be leaving the EC.

Editor **Gretchen Gillis** is making a strong effort to increase the number of BULLETIN articles and Special Publications and will remain on the EC two more years.

House of Delegates Chair **Marty Hewitt**, who was well organized in running the delegates' breakfasts as well as the annual HoD meeting, will be rotating off the EC and joining me on the Advisory Council.

Hasta la vista,

Will Green



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AAPG Foundation to receive $9.4 million

Pickens Funds GIS Consortium

By LARRY NATION
AAPG Communications Director

The AAPG Foundation has announced a $9.4 million donation from geologist, businessman and entrepreneur T. Boone Pickens to develop a GIS digital geology consortium between AAPG and Oklahoma State University.

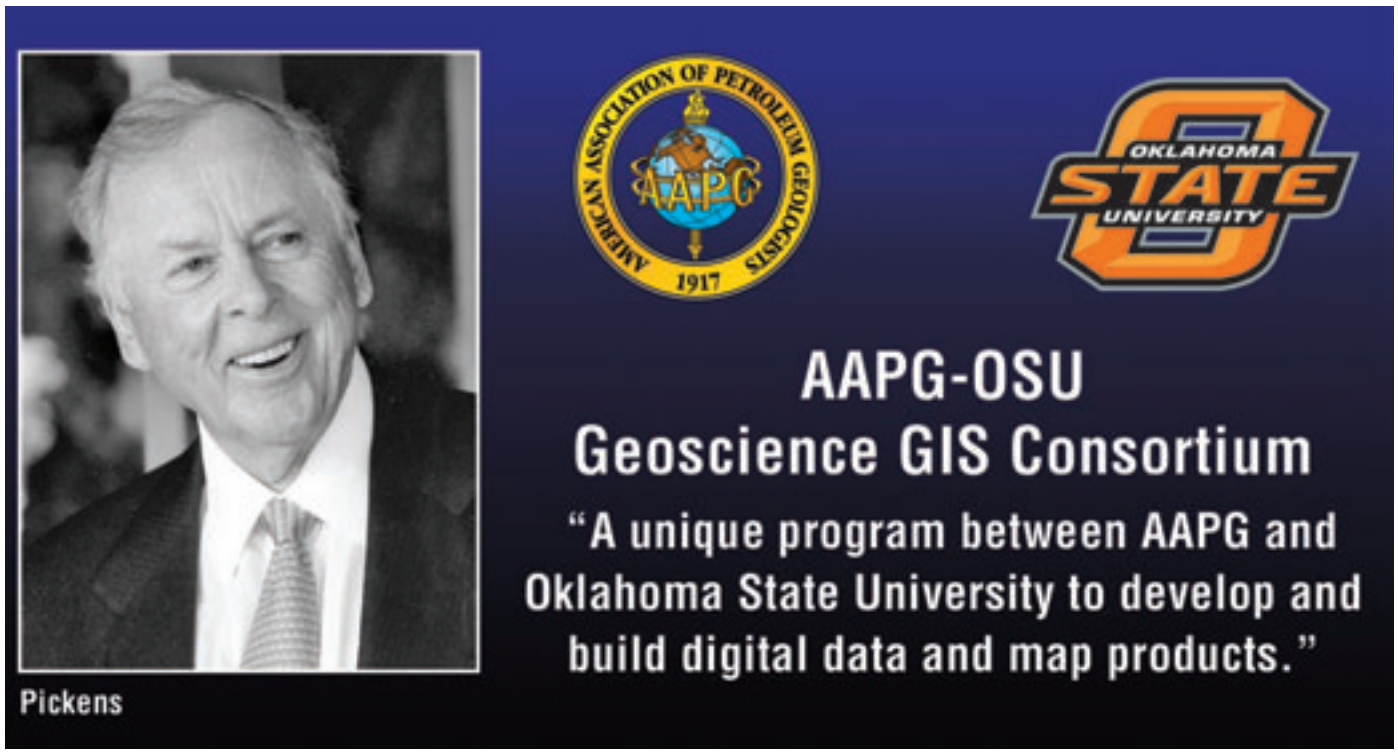
The gift from the T. Boone Pickens Foundation is designated to create the first consortium of its kind, designed to produce digital GIS products through OSU's geology and geography department and be made available to professionals and the public via AAPG's intranet database.

The gift comprises $240,000 per year for 10 years, plus a gift of $7 million provided in Pickens' will as a legal testament. It is one of the largest single bequeaths the AAPG Foundation has ever received.

The bequeath pushes the AAPG Foundation fund-raising campaign to $23 million toward a goal of $35 million (see page 10). The Foundation supports educational, charitable and scientific objectives that directly and indirectly benefit the geologic professional and general public.

Pickens, an internationally known businessman and philanthropist, is a native of Holdenville, Okla., a graduate of OSU and has been a member of AAPG since 1954. He presently chairs the hedge fund BP Capital Management.

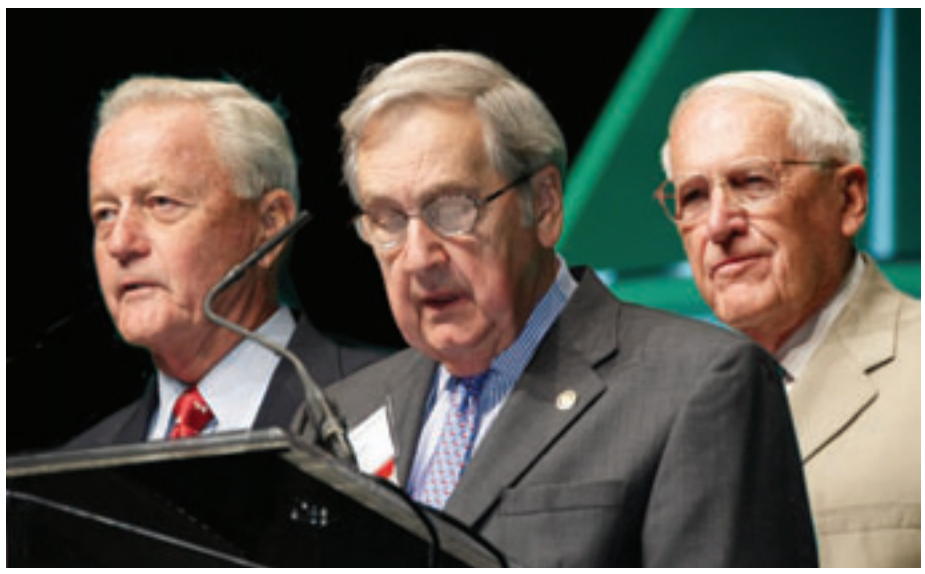
The funds will provide operating capital for the Boone Pickens Digital Geology Fund to provide geologic, scientific and resource information to the general public via a map-based format researched and compiled through graduate geology students. The project also will benefit students by providing industry-specific research projects published in industry-friendly formats, enhancing their skill set and boosting their desirability as graduates.



Pickens

"I like making money," Pickens has said. "I like giving it away … not as much as I like making it, but it's a close second. I firmly believe one of the reasons I was put on this Earth was to make money and be generous with it. And that's what I've continually tried to do."

The breadth of Pickens' philanthropy – more than $600 million during his career – includes health and medical research, treatment and services, entrepreneurship, kids at risk, education and athletics – with a particular focus on his alma mater, Oklahoma State University – corporate health and fitness, and conservation and wildlife management. ❑



Jack Threet (left), Bill Fisher and Larry Funkhouser announced the AAPG Foundation's new fund drive during the opening session at the recent Annual Convention and Exhibition in San Antonio.

$35 million goal

Fund Drive Opens With Momentum

Three years ago, under the guidance of then-Chairman Jack Threet, the AAPG Foundation started planning a program to increase funding for key existing and numerous new programs.

"The AAPG Foundation performs a vital role in our industry and society," Threet said. "And we believe the most important investment we can make is in the support of our students, teachers and researchers who have unlimited potential to make our world better."

"It is to that end – investing in the future – that a few of us decided we could and should make sure the Foundation is significant enough to meet the needs of our profession, industry and society."

The goal, said AAPG Foundation chair William L. Fisher, was to double the Foundation portfolio, which then was worth a little over $16 million.

Two years ago a Financial Campaign Committee was established, with Jack Threet and Larry Funkhouser serving as co-chairs.

A major bequest of $10 million to the Foundation establishing the L. Austin Weeks Memorial Fund in 2005 was the lead gift in the campaign and set a bedrock for the campaign titled "Meeting Challenges – Assuring Success," on which future donations could build.

Marta Weeks, the first recipient of the Foundation's Weeks Medal, named in honor of her husband, was asked to join the campaign along with Bill Crain, Ed Picou, Mike Party and Bob Ardell. Also, the remaining Foundation Trustees – Fisher, John Amoruso, Bill Barrett, Marlan Downey, Jim Gibbs and Bill Gipson – were key members as well.

During the past two years the leaders met with AAPG members who could substantially support this campaign.

"This was step one, the 'quiet campaign.'" Fisher said.

"In 2005, when we started the campaign's 'quiet phase,' we hired a consultant to conduct an audit and survey of AAPG Trustee Associates," Threet continued. "We were not surprised to learn that the Foundation had a good reputation – but we were very surprised to learn that most members were not familiar with Foundation activities or support."

Step one, Threet said, was a major ad campaign in the AAPG EXPLORER to define the programs and objectives.

The survey also asked members about preferential areas of support. These answers were prioritized and used to build the fund-raising program. K-12 education and support for students and teachers were the highest priorities.

But the initiative really began gaining momentum in the fall of 2005, when L. Austin Weeks provided in his will a gift of $10 million to the Foundation. Marta Weeks agreed to have it used as the lead gift in the campaign.

Since that time the more than $12.8 million in additional gifts and pledges have been raised from only 70 members.

The public phase of the AAPG Foundation financial campaign is now open, and members are invited to take a look at the campaign initiatives on the Web site (foundation.aapg.org) and urged to support the Foundation campaign.

For further information contact Foundation manager Rebecca Griffin at (918) 560-2644. ❑

Activity growing reserves

Rockies Taking Front-Runner Role

By LOUISE S. DURHAM
EXPLORER Correspondent

The long-famous quote "Go West, young man …," coined by American newspaper writer John Soule in 1851 and subsequently popularized by Horace Greeley, continues to have meaning today – at least in the oil patch.

Right now, it's all about the Rocky Mountains – a region that beckons to the oil and gas players like never before.

"While offshore is declining, the Rockies are expanding," said AAPG member R. Randy Ray, Denver-based consulting geologist/geophysicist and a recognized expert on the region.

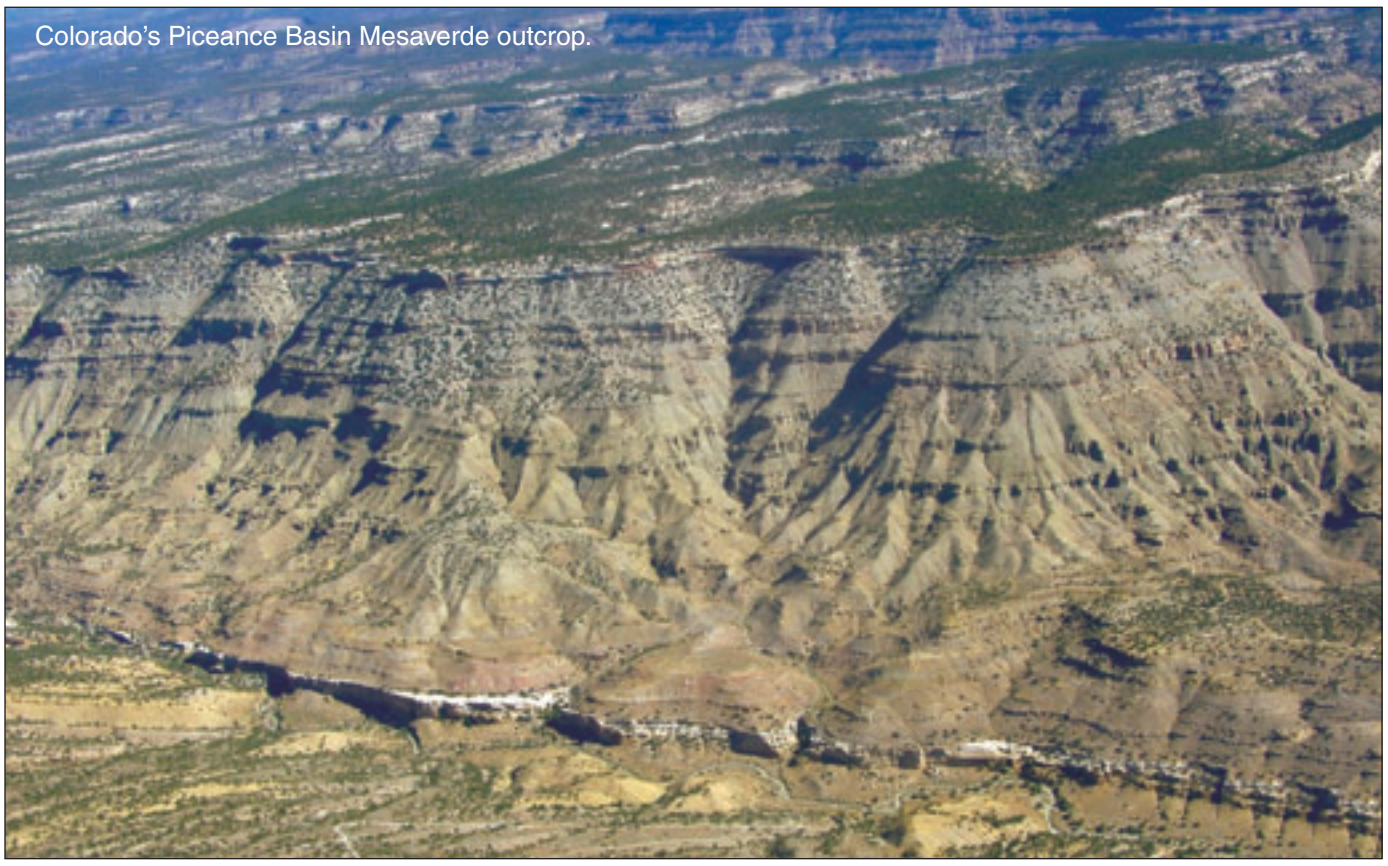
"Rockies gas production is the fastest growing area in the U.S.," he added. "This is where we're going to find the big reserves to energize our country."

Recently released results of a study conducted by the U.S. Geological Survey go far to back up Ray's statements.

The agency announced that it estimates the Upper Devonian-Lower Mississippian Bakken formation in the Williston Basin in Wyoming and North Dakota could harbor about 3.7 billion barrels of oil (see related stories, page 20).

This would be the biggest single deposit in the nation outside of Alaska.

But the already-active Bakken play is just one of many areas seeing heavy action in this part of the world.



Colorado's Piceance Basin Mesaverde outcrop.

Photo courtesy of Bill Barrett Corp.

Some of the "virtual beehive" of activity at Wyoming's Pinedale field.

Photo courtesy of Ultra Petroleum

ROCKY MOUNTAIN ROUNDUP

Piceance Success Stories

Colorado's Piceance Basin is a lively place, according to Steve Cumella, another AAPG member and senior geologist at veteran Rockies player Bill Barrett Corp., which operates in the Piceance and other areas.

Even industry behemoth ExxonMobil holds extensive acreage in the basin.

"Exxon, EnCana and Williams have by far the biggest acreage positions," Cumella said. "Williams alone has something like 27 rigs drilling.

"There are a lot of other companies operating," he added, "and very conservatively I'd say there's 50 to 60 rigs running – maybe closer to a hundred."

Essentially all the gas production in the Piceance is from tight gas sands of the Cretaceous-age Mesaverde group. Owing to the discontinuous low permeability nature of the sandstone reservoirs, well density is 10 or 20 acres for the most part; well depths average 8,000 feet.

The average reserves per well are 1.5 bcf, and well costs range between $1.5 million and $2.5 million.

"The economics are better now because gas prices are better," Cumella said. "If you can drill a 1.5 bcf well for one-and-a-half million dollars, that's highly economic today. In a lot of the basin there's zero percent dry hole risk, so you drill a well and there's usually 100 percent chance of success.

"Bill Barrett has drilled close to 300 wells there with no dry holes, and Williams would have drilled close to 3,000 with no dry holes.

"That's the attraction of these types of basins that are gas plays," Cumella noted. "If it works like it's supposed to – according to the model that you would have these thick gas-saturated intervals – then in any given well you have enough pay to make a commercial well."

A Big Deal at Pinedale

There's a virtual beehive of ongoing activity at the Pinedale field in Wyoming where Questar, Shell and Ultra Petroleum are the major operators.

"It's one of the most active areas in the Rockies right now," said AAPG member Vinnie Rigatti, general manager-legacy division at Questar. "There's a lot of focus, a lot of attention on the environmental side and the operations side – it's just a big deal."

Pinedale is a huge anticlinal structure in the Greater Green River Basin in southwestern Wyoming, and it has some huge potential – in fact, it's likely the second largest gas field in North America, Rigatti noted.

AAPG member Fred Julander of Denver-based Julander Energy concurred.

"I think right now the Barnett (in Texas) is the biggest and Pinedale is the second," Julander said. "The published data may not say that, but I think that's where we are in real time."

Pinedale was initially mapped in the 1920s, and the first well was drilled in 1939. Nearly 60 years later, in 1997, Ultra drilled the first commercial well.

A 2006 year-end reserves assessment by Nederland Sewell noted gas in place at Pinedale to be 48 tcf.

Total estimated recoverable reserves for the field are in the range of 20-25 tcf, according to Diana Hoff, general manager of the Pinedale division at Questar. Hoff noted Questar plans to drill 75 wells at Pinedale this year.

Cutting the Timeline

Pinedale field production is from the overpressured tight gas Lance Pool sandstone of Upper Cretaceous age. The average well depth is 13,700 feet, according to AAPG member Sally Zinke, director of exploration at Denver-based Ultra, which currently has 16 operated rigs running and nine non-operated on acreage where it holds an interest.

The company's average cost to drill, complete and bring a well online (including production equipment) is $5.7 million.

"One thing we're pretty excited about now is we TD'd a deep exploration test in February, and we're getting ready to start completion on it this month," Zinke said. "We drilled to 19,500 feet and tested the Rock Spring, Blair and Hilliard formations."

Zinke noted that the company's drilling time and also its drilling costs at Pinedale have decreased significantly during the past year. Where it used to take 40-45 days to drill a well, that's now down to the 25-day range.

Currently, the company is awaiting a final draft and ultimately a record of decision on a supplemental EIS.

"That will make a large difference in operations in Pinedale, because it would structure us to have year-round drilling, which we've not been able to take advantage of in the past," Zinke said. "In some areas, we're only allowed to operate between August 1 and November 15, which puts a crimp in the rig fleet and other things – you can't really set up and have the synergy of staying on a pad and drilling through everything.

"I think the BLM is looking hard at the fact that by moving rigs in and out to fit these windows it's causing more disturbance than if you park the rig and stay," Zinke said. "We're going to use an 11-12-acre pad that can accommodate 32 wells, so we'll be able to put a rig or two on and drill for a couple of years without moving a rig out – it provides less disturbance."

It also makes far more sense for production and overall economics.

"It's difficult moving rigs in and out because you have a specific date and you may not be finished with a well," Zinke noted. "Or you need to plan to drill fewer wells in the area because you have to leave sooner.

"We hope to have the record of decision by late summer so we can plan what we'll be doing before winter hits."

The Jonah natural gas field on the south edge of Pinedale is another area of operations for Ultra, where it is the third largest operator behind Encana and BP.

Shale Gas Potential

In addition to tight gas sands and coalbed methane plays such as the Powder River Basin in Wyoming and the Wind River Basin in Colorado, the operators are paying considerable attention to shale gas potential in the Rockies.

"A potentially significant thing in the

See **Activity**, page 14

Access, Regs Are Issues

Lately, there's been much ado about declining hydrocarbon production darn near everywhere *except* in the Rocky Mountains, where production is actually increasing – and at a rapid rate.

Even so, there's cause for concern in certain areas such as Colorado, where the prolifically productive Piceance Basin is located.

"The main thing that affects Colorado in general is the Oil and Gas Conservation Commission is planning on introducing new regulations that would potentially severely restrict operations activity," said AAPG member Steve Cumella, senior geologist at Bill Barrett Corp.

"There are federal regulations that can limit operations in terms of things like timing limitations for wildlife," Cumella said. "Current rules would take those same kind of considerations and apply them to fee leases.

"This is mainly an issue in the West, whereas for the eastern plains and such these types of timing restrictions wouldn't be nearly as common.

"Out in the western part of Colorado, which would be the Piceance Basin as a prominent example, this area would be potentially affected by these regulations that might cause operations to cease during parts of the year, where they're yearround now," Cumella said.

He pondered the wisdom of such restrictions using a non-industry related analogy:

"If you have a big factory employing maybe 2,000 people, and someone says the noise they make bothers these raptors that are nesting at certain times of the year and you need to shut the factory down for about three months, people would say, 'You must be kidding,'" Cumella said.

He noted that should this occur, the cost of what the factory is making would go up because it's not an efficient way of using the factory.

"The people affected would be those who a lot of times can least afford these things," Cumella noted. "It's astounding that the economic impact to the average consumer is not being considered when talking about these regulations."

– LOUISE S. DURHAM

Activity

from page 12

Rockies is there are a lot of companies, including Bill Barrett, who are attempting shale gas plays here," Cumella said. "We're exploring in the Paradox Basin, as a specific example, and other companies are doing shale gas plays in a number of the basins.

"Shale gas is a tough learning curve, but this could be a big boom if some start to work," Cumella said, noting the now-wildly successful Barnett Shale.

"The key would be repeatability," Cumella noted. "Any time you can work in a play that has minimal dry hole risk, it really helps the economics."

A year ago, the E&P community was anxiously awaiting results from the first horizontal well being drilled in the Baxter shale in the Vermillion Basin in southwest Wyoming.

They're still waiting, in a sense.

The well is producing, but it's in a long-term production test, and operator Questar is evaluating results, according to Rigatti.

"We've drilled 23 wells to date in the area assessing the extent of the Baxter accumulation, and we're watching those wells now," Rigatti said. "We've had mixed results, with a couple of fantastic wells, a couple of disappointments and some middle of the road.

"We've drilled three horizontal wells in the Baxter, and the others are vertical wells drilled through the Baxter to the Frontier and Dakota formations."

Rigatti noted Questar currently is in the third year of a new EIS straddling the Colorado and Wyoming state lines and is anticipating a record of decision perhaps in mid-2009.

3-D's High Profile

In a region where activity is essentially exploding, it comes as no surprise that 3-D seismic data acquisition programs are expanding as well (see related story, page 26).

Data availability in the Rockies pales in comparison to areas like the Gulf of Mexico and its nearby onshore areas, but the contractors have been revving up the Rockies activity for several years.

"We're seeing strong demand forecasted for the next several years for both multi-client and proprietary data," said Mike Bertness, vice president-land library U.S. at CGGVeritas.

Bertness and Rigatti both will present papers at a session addressing the business value of 3-D at the July 9-11 Energy Epicenter meeting in Denver, to be jointly hosted by the Colorado Oil and Gas Association and the AAPG Rocky Mountain Section.

Zinke will also present at the session.

"Right now the Bakken play is the hottest area for 3-D in North Dakota," Bertness said. "Another area people are looking at seriously where there's not a lot that's been shot is the Piceance Basin.

"In the Rockies, there's a limited time window you can shoot 3-D because of all the different restrictions, either from the BLM, or environmental restrictions for the sage grouse and things like that," Bertness noted.

"The window is typically late summer to fall, and we see multiple crews working in there during that time frame," he said. "Some areas you can work year 'round, but most areas have restrictions."

Not long ago, AAPG member Peter Dea, president and CEO at Denver-based Cirque Resources, noted that the Rockies continues to suffer from over-regulation of federal agencies.

"We're very conscious of protecting the environment," Ray noted, "but some people don't want any activity at all, so it's always a challenge there. ❑

Complexity defies easy approach

Tricky Geology Is Utah Hallmark

By DAVID BROWN
EXPLORER Correspondent

Few areas in the United States contain as much complexity thrust into prospectivity as central Utah.

"Central Utah is an area where there are stratigraphic changes happening from east to west. Then you complicate that by the Sevier orogeny, followed by the most recent episode of the Basin and Range normal faulting," said AAPG member Doug Sprinkel, senior geologist for the Utah Geological Survey.

"You start with complex stratigraphy, then complicate it by telescoping the strata eastward during thrusting," he said. "Then normal faulting extends the section westward, often along the pre-existing thrust faults."

If the area's geological complexity can't be doubted, neither can its exploration potential.

Wolverine Gas & Oil Corp. lit a firestorm of interest in central Utah with its Covenant oil field discovery in Sevier County in 2004.

Estimates of original oil in place at Covenant range from 75 million to 150 million barrels.

Now reports of a new field discovery near Mayfield in Sanpete County are stoking industry interest again, primarily in Sanpete, Sevier, Carbon, Emery and Juab counties, about 100-170 miles south of Salt Lake City.

Studies, prospects, reviews and hopes all have been generated, but the complexity of the play area defies any easy approach.

"It's something you have to be aware of – it's something you can easily get tripped up on," Sprinkel said. "A lot of geologists ignore the detail of this complexity."

Photograph by Doug Sprinkel.

Utah complexity: The intensely folded Arapien Shale forms the core of the Sanpete-Sevier Valley antiform that trends essentially north-south. The location of the Wolverine Federal Arapien Valley 24-1 well is along an east tributary of the drainage that is about the center of the photograph, less than two miles away.

ROCKY MOUNTAIN ROUNDUP

Stratigraphic Changes

Drilling in the play area generally reaches a maximum total depth of 14,000 feet – and trying to place the tops is anybody's guess.

Right now, shallower formations don't appear as promising. Pay zones in the new discovery could be between 8,000-9,500 feet, 10,000-11,000 feet and 12,500-14,000 feet.

Other central Utah prospects target potential pay zones at 6,500-9,000 feet and 11,000-13,000 feet, including both sandstone and limestone formations.

Commercial pay zone thickness could range from a healthy 300 feet to more than 1,000 feet, with closures covering four to six square miles.

According to reports, Wolverine has been producing 7,000 barrels of Covenant oil/day from 10 wells in the Navajo Sandstone at 5,700-6,200 feet on 80-acre spacing.

Thickness of the Jurassic Navajo Sandstone, the primary target, varies by location. Wolverine found about 500 feet of gross pay and 450 feet of oil column within the Navajo, in a sand up to 1,200 feet thick.

Stratigraphy changes are evident from both west-to-east and north-to-south across the central Utah region.

"For example, the Triassic section that underlies the Nugget Sandstone in northern Utah also is present on the hanging wall on the Nebo thrust plate in central Utah – but on the footwall the Triassic section is more typical of the Colorado Plateau geology," Sprinkel said.

"As you go to the east (from the Nebo thrust in central Utah), you get into the Glen Canyon Group, which includes the Navajo Sandstone, the Kayenta Formation and the Wingate Sandstone, instead of Nugget," he added.

On the Nebo thrust in central Utah, stratigraphic charts show the Upper Triassic-Lower Jurassic Nugget Sandstone is overlain by the Twin Creek Limestone (lowermost five members), Arapien Shale and Twist Gulch Formation.

Across the region in east-central Utah, the Glen Canyon Group (Wingate, Kayenta and Navajo) comprise a Nugget equivalent, and underlies the Jurassic Carmel

See **Utah**, page 18

Utah

from page 16

Formation (Twin Creek and Arapien Shale equivalent). But the series also vary by location, with sometimes unpredictable changes in the Lower Jurassic.

"Above the Navajo in the western part of central Utah you have the Twin Creek overlain by the Arapien," Sprinkel noted.

The Middle Jurassic thins to the east, going "from 3,500-4,000 feet depositional thickness down to 1,000 feet, fairly quickly," he said.

An Open Question

Sprinkel was one of nine co-authors on a paper describing the petroleum geology of the Covenant field area.

It defined Utah's central Sevier thrust, or Hingeline, as a section of thrust belt extending from the Uinta Mountains in northern Utah to the Marysville volcanic complex of south-central Utah.

This Hingeline coincides with a boundary between a thick succession of sediments in western Utah and a thinner succession in eastern Utah from the late Proterozoic to Triassic.

In the Cretaceous-early Tertiary, it influenced thrusts at the eastern margin of the Sevier belt. It also marks the general boundary between the Basin and Range and Colorado Plateau provinces.

The complex transitional zone reflects the Jurassic-Eocene compressional Sevier orogeny, extensional tectonics and Oligocene-Neogene volcanism.

The Sevier thrust play area in central Utah is often called the Hingeline play. Well control shows high porosity within potential pay zones in the region and average permeability of 100 mD.

Tectonic history provides many structures for evaluation, and both the tectonic and depositional history have resulted in plentiful trapping mechanisms.

That leaves the question of source rock – which remains an open question.

"This is a Paleozoic oil, likely Carboniferous, and the most likely suspect is Mississippian. We haven't been able to determine whether the source rock is Delle Phosphatic shale or Manning Canyon Shale," Sprinkel said.

"Has the heat flow from Oligocene volcanic rocks in the area played a role?" he asked. "I don't know the answer to that."

Key to the question is whether the sourcing is generated on the local thrust sheet or is migrating in. And with many shale systems present, the sourcing for the Covenant field might not be the only source rock available.

"A couple of wells have had shows in the Triassic Sinbad Limestone member of the Moenkopi Formation," Sprinkel noted.

And the Navajo is far from the only possible production target.

Some geologists "might not appreciate there are two potential reservoirs in the Twin Creek Limestone above the Navajo Sandstone," Sprinkel said.

Thrusting, folding and faulting indicate a complex migration picture, which could lead to oil discoveries in unexpected places.

Topsy-Turvy

The Covenant oil field is believed to be the largest onshore oil province discovered in the U.S. Lower 48 since the East Anschutz Ranch field in the Absaroka thrust play.

While the on-trend fields in northern Utah reflect complex geology, they are no match for the topsy-turvy thrust and fold of central Utah.

"Northern Utah and southwest Wyoming do seem a bit simpler from that point of view, because there you're thrusting your reservoir rock up and over the Cretaceous marine source rock," Sprinkel said.


Sprinkel

In proximity to the central Utah exploration region are major gas-producing areas:

✓ The Clear Creek natural gas field, discovered in the 1950s, has produced more than 115 billion cubic feet of gas from the Cretaceous Ferron Sandstone.

✓ The Drunkards Wash coalbed methane field is the largest gas-producing field in Utah.

✓ The Joes Valley Gas Field in Sanpete County has produced more than three billion cubic feet of gas from the Cretaceous Ferron and Dakota sands.

Sprinkel said some earlier wells in the central Utah oil-play area produced "puffs" of gas that were flared, but quickly declined.

Petro-Hunt LLC, Clayton Williams Energy Inc., Yates Petroleum Corp. and Delta Petroleum Corp. are among the companies that have been active in the area recently.

In addition to 3-D seismic surveys, central Utah has seen a new gravity gradiometry study. ARKeX of Cambridge, England, conducted a multiclient, airborne survey of the Hingeline region.

ARKeX said its first-phase 150-square-mile survey was followed by acquisition of another 300 miles of gravity data. An additional 750 square miles are scheduled to be flown this summer.

Following the Hingeline

According to prospect descriptions, Cretaceous sands may be secondary Hingeline objectives in fault-trap closures and hanging-wall anticlines along the Wasatch Monocline, a 60-mile synchronous uplift formed during the late Cretaceous-late Eocene.

The north-south, high-angle, basement-involved ancient Ephraim fault underlies the western margin of the Wasatch, defining the boundary of the Hingeline.

From Late Jurassic through early Tertiary, large-scale thrust sheets were emplaced in central Utah. Major thrust faults include the Canyon Range thrust, Pahvant thrust, Paxton thrust, the Charleston-Nebo thrust system and the Gunnison-Salina thrust.

To the west, the thrust systems are older and moved more than the eastern central Utah thrusts. The Ephraim and other middle Jurassic faults may have gone through additional Laramide-age, Maastrichtian through Eocene movement.

The structurally complex leading edges of the thrusts include numerous thrust splays, back thrusts, duplex systems, fault-propagation folds and ramp anticlines.

Jurassic shales, mudstone and evaporite beds served as glide planes along the hanging-wall flats of the thrust systems.

Most anticlinal closures in central Utah range from three to 12 miles long and one to three miles wide, with up to 4,000 feet of vertical closure.

Hanging-wall anticlines at the eastern margin of the Sevier belt show a similar structural style and reservoir development to the Absaroka thrust in northern Utah-southwestern Wyoming.

In central Utah, the Jurassic extensional faulting may be a clue to identifying hydrocarbon migration paths and antiformal stacks that contain traps along thrusts.

At Covenant, the Navajo oil reservoir covers about 960 acres.

The field trap is a symmetric, northeast-trending, fault-propagation/fault-bend anticline with nearly 800 feet of structural closure and a 450-foot oil column.

As of early May, Wolverine had not released any details of the Sanpete County drilling results. Several other companies had Hingeline prospects either under study or in the funding stage.

By providence, central Utah should be one of the most interesting exploration areas to watch this year. ❑

Giant Elm Coulee was breakout find

Bakken Success Beckons Players

By LOUISE S. DURHAM
EXPLORER Correspondent

Shale plays such as the Barnett, Fayetteville, Marcellus and more continue to excite oil and gas operators and garner considerable ink in the mainstream press.

But there's a new kid in town.

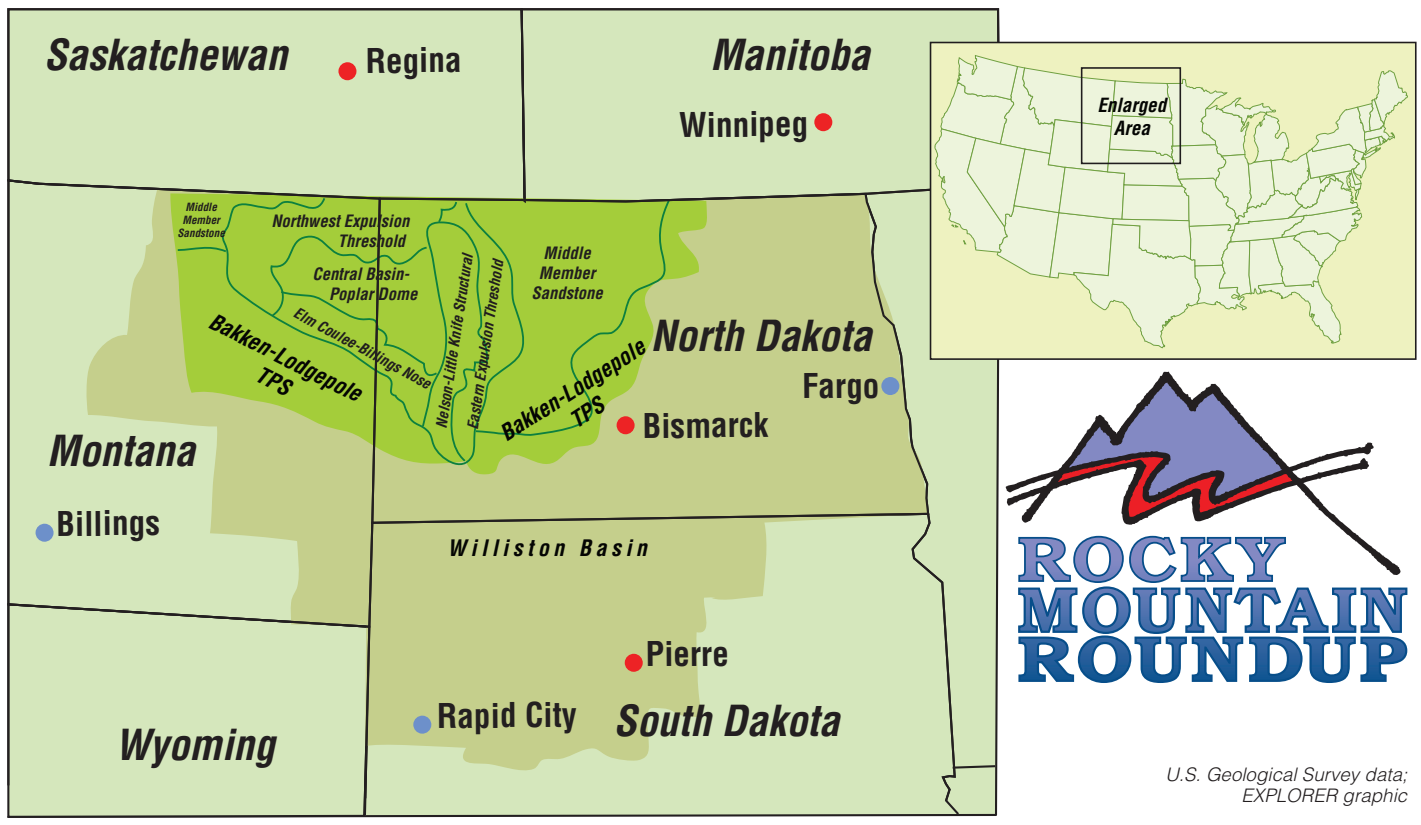
It now appears that the relatively low profile Bakken shale play in Montana and North Dakota has the potential to become the Big Daddy of them all.

The U.S. Geological Survey – using a geology-based assessment methodology (see related story, page 22) – estimated mean undiscovered volumes of 3.65 billion barrels of oil, 1.85 tcf of associated/dissolved natural gas and 148 mbo of natural gas liquids in the Bakken formation of the Williston Basin province in North Dakota.

It's the largest continuous oil accumulation the agency has ever assessed, according to AAPG member Rich Pollastro, geologist and Bakken formation task leader at the federal agency.

Pollastro noted a continuous accumulation is one that is assumed to have hydrocarbons everywhere as opposed to a conventional, or discrete, accumulation with a distinctive hydrocarbon-water contact.

The widespread Upper Devonian-Lower Mississippian Bakken formation, which extends even beyond the United States into the Canadian provinces of Saskatchewan and Manitoba, is made up of an upper and a lower shale member and a mixed siliciclastic carbonate middle member, which is ordinarily referred to as a dolomitic sand or a sandy dolomite.



U.S. Geological Survey data; EXPLORER graphic

Both the upper and lower shales are organic-rich marine shale of rather consistent lithology, according to the USGS. These shales are the petroleum source rocks as well as part of the continuous reservoir for hydrocarbons produced from the Bakken formation.

Findley's Eureka Moment

In the late 1980s and 1990s, the upper Bakken was the focus of considerable activity, but the wells were marginally economic and difficult to produce. Consequently, it usually was looked on as a bail-out zone rather than a target.

That changed dramatically beginning in 1995 when explorer Dick Findley of Prospector Oil Inc. – who later would be named AAPG's Explorer of the Year – determined there was good porosity and a likely oil zone in the fractured dolomitic middle section. This Eureka moment eventually led to the development of the

See **Bakken Shale**, page 24

Low profile no longer

Jaws Drop Over Bakken Potential

By LOUISE S. DURHAM
EXPLORER Correspondent

That celebratory shout you may have noticed reverberating through a part of the oil patch recently may have been the one triggered quietly by a news release.

Not just any news release, of course. This one was from the U.S. Geological Survey, and it announced that its assessment of the Bakken formation in the Williston Basin in Montana and North Dakota revealed about 3.65 billion barrels of undiscovered technically recoverable oil.

In other words, the largest single deposit in the United States except for Alaska.

Along with the oil, the agency tacked on 1.85 tcf of associated/dissolved natural gas and 148 mbo of natural gas liquids.

Some skeptics are questioning the numbers – a USGS assessment of the Bakken in 1995 estimated about 151 million barrels of oil could be found there, making the new figures larger by about 25-fold.

But the assessment was conducted using tried and true geology-based assessment methodology, noted AAPG member Rich Pollastro, a USGS geologist and the Bakken formation task leader.

"We're mandated by law from the Energy Policy Conservation Act of 2000 to provide these assessments of 32 priority basins in the United States," Pollastro said.

"These priority basins hold about 96 to 98 percent of the known oil and gas resources for the U.S.," he noted. "They are prioritized based on not just resource potential but also on federal land percentage."

The Williston Basin is only about six-and-a-half percent federal lands in the Bakken assessment, Pollastro pointed out, but there are a lot of tribal lands.


Pollastro

> "In the continuous type, we assume the hydrocarbons are everywhere – it's just a matter of how successful you'll be with recovery."

"The subsequent Energy Policy Act of 2005 states that we have to use the same methodology in producing these assessments," he said, "so the Bakken assessment was performed like all others and could not be modified in any way."

Putting It Together

The USGS findings, as expected, made a huge impact when released in early April, with stories that went far beyond the usual industry publications.

"Billions of Barrels of Oil May Lie Under Northern Plains," read the headline in the *New York Times*.

Pollastro spent much of April talking to the media about the findings, and was a popular target for journalists at the recent AAPG Annual Convention and Exhibition in San Antonio.

Speaking to the EXPLORER about the report's methodology and the area's geology, he said the assessment is based on geologic elements of a "total petroleum system" that include:

✓ Source rock distribution, thickness, organic richness, maturation, petroleum generation and migration.

✓ Reservoir rock type (whether continual, i.e., unconventional, or conventional), distribution and quality.

✓ Character of traps and time of formation with regard to petroleum generation and migration.

To aid in the estimate of the Bakken resource, detailed framework studies in stratigraphy and structural geology along with petroleum geochemistry modeling were combined with historical exploration and production analyses.

The area involved was delineated into assessment units (AU). Pollastro noted the geologic model used to define the AUs and assess the Bakken formation resources generally includes:

✓ Thermal maturity of the Bakken shale source rocks.

✓ Petrophysical character of the middle sandstone member (ordinarily referred to as a dolomite by industry participants).

✓ Structural complexity of the basin.

The area of the oil generation window for the Bakken continuous reservoir was determined and then divided into five continuous AUs. A sixth hypothetical conventional middle sandstone member AU was defined external to the area of oil generation.

The final assessment numbers released included all of the AUs.

"For the assessment process you have to convert geology and the geologic models into numbers, look at all the engineering aspects, the EURs on the wells, the spacings and so on," Pollastro said. "It's very involved for each of these units.

'Geologic Uncertainty'

The methodology to assess the continuous accumulations – or what the industry calls unconventional – is different from the conventional, Pollastro noted.

"In conventional accumulations we look at sizes and numbers for the accumulations," he said. "In the continuous type, we assume the hydrocarbons are everywhere – it's just a matter of how successful you'll be with recovery."

The assessment of the Bakken formation indicates that most of the undiscovered oil resides within a continuous composite reservoir that's distributed across the entire area of the oil generation window.

Also, it includes all members of the Bakken formation – the upper and lower shales and the middle member designated sandstone by the USGS but ordinarily referred to as a dolomite by the industry.

"At this time, only a limited number of wells have produced from the Bakken in the Central Basin-Poplar Dome AU, the Eastern Expulsion Threshold AU and the Northwest Expulsion Threshold AU," he added.

"This means there is significant geologic uncertainty in these estimates, which is reflected in the range of estimates for oil." ❑

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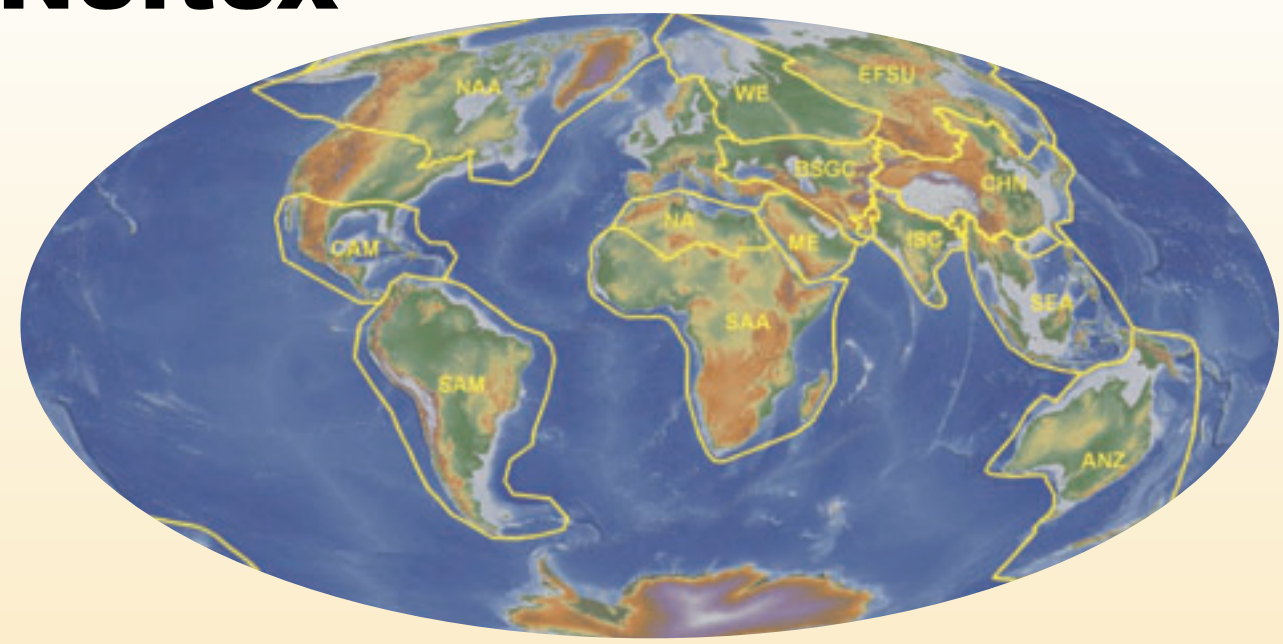

Neftex Earth Model

Neftex is developing a 3D Earth Model using its own independently constructed sequence stratigraphic framework mapping over 100 sequences at global scale.

- *Unifying databases, workflows and exploration and development assets*
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- *Enhancing efficiency and competitive advantage*

Products

Our Earth Model is available as individual licensed regions, or under a global arrangement, and includes the following integrated products:

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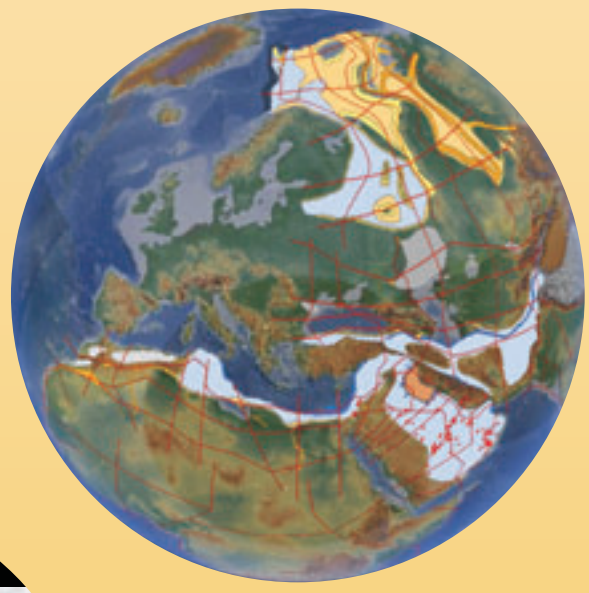
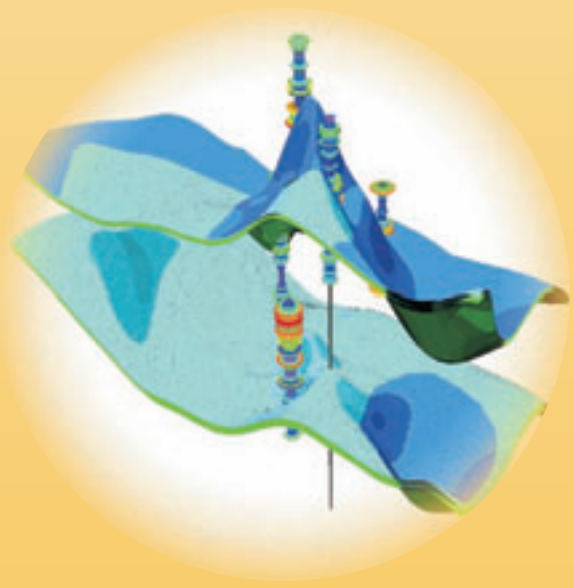
- *Thousands of interpreted digital wells*
- *Detailed chronostratigraphic charts*
- *Tectonic elements in GIS*
- *Structural cross-sections and depth maps*
- *Petroleum occurrence and play analysis*
- *Portfolio of play schematics*





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Delivering Excellence in Petroleum Geoscience

Bakken Shale

from page 20

giant Elm Coulee oil field in the Bakken in eastern Montana.

The super-big assessment numbers the USGS released recently have raised more than a few eyebrows in the oil and gas community, but the consensus appears to be there truly are hydrocarbons aplenty awaiting the drill bit.

"There's no question there's a tremendous amount of oil in place in general in the Bakken shale," said Bud Brigham, chairman, president and CEO of Brigham Exploration.

He noted the company holds 240,000 acres total in the Bakken in Montana and North Dakota.

"We're still growing our acreage position, with maybe 50 brokers in the field," Brigham said. "We have a rig running continuously drilling wells east of the Nesson anticline, and we anticipate drilling more wells west of the anticline in western North Dakota and Montana."

Complex Considerations

Drilling in this play is not a cheap undertaking.

It requires horizontal wells that go down 10,000 feet vertically and then reach laterally into the dolomitic middle Bakken member for about another 10,000 feet to tap the oil from the pores and fractures. Well costs tally from $5 million to $6 million, depending on completion work and other factors.

Horizontal drilling alone is not the key to making the play work. The defining factor to efficiently produce maximum oil is multi-stage fracing, which entails partitioning the long lateral into segments and stimulating these segments independent of one another. The sections are then co-mingled and produced all at once.

"We get better results using multi-stage fracing versus fracing the lateral all at one time," said Brent Miller, operations manager for the Williston Basin at Whiting Petroleum. "You get more effective fracture stimulation.

"Swell packers are used to separate the lateral into separate pieces so they can be stimulated separately," Miller said. "Swell packers go back two or three years; EOG was the first to use this technology in the Bakken, and it's just now starting to take off."

EOG has established a major presence in the play, and its discovery well at Parshall Field in Mountrail County in northwestern North Dakota had an impact on the USGS study.

"This was a surprise discovery at Parshall in that this success was outside the Bakken oil window that was previously understood – it was to the east of that," Pollastro said. "It was outside the area of what was thought to be the continuous accumulation.

"We had to re-establish the area where the oil generation window for the Bakken was to do our assessment," he continued. "From the oil taken from those wells, we think it was generated in place. That's the model I developed – some agree and some have a different story."

The Right to Drill

This part of the world is rife with environmentally sensitive lands, so permitting issues will be front and center as the play progresses. Much of the area is under the aegis of the federal government along with other agencies.

Kodiak Oil and Gas, which has Bakken play experience at Elm Coulee, is assembling a lease block that is solely within the bounds of the Ft. Berthold Indian Reservation in North Dakota's Dunn County.

"The agencies involved are the BLM and the BIA (Bureau of Indian Affairs), and they're generally very cooperative," said AAPG member Jim Catlin, chief operating officer at Kodiak, who noted that a great deal of the Bakken is on Indian lands.

"No wells have been drilled on the Fort Berthold Reservation for more than 25 years," Catlin said, "and everyone is trying to catch up to how fast this thing has developed.

"All applications to drill go from the BLM to the BIA, which is the surface management agency, and they're not staffed up yet to completely do environmental assessments, so the companies are doing that part," Catlin noted. "Since there haven't been any wells drilled there recently, this is new, and we're working through the procedure and the best way to do it.

"We anticipate as we progress, the permitting process will become much smoother."

Big Plans Prepared

Kodiak looks forward to receiving its first Fort Berthold drilling permit shortly, and it has big plans.

Drainage areas have not yet been determined, but the company envisions having more than 100 locations in the event of 320-acre spacing.

"One thing that's critical as the play moves along is infrastructure," noted AAPG member Russ Cunningham, Williston Basin exploration manager at Kodiak. "There are a lot of pipelines being built now, and we need both gas lines and oil pipelines.

"Plans are being made by some operators, and we'll be looking into gas gathering systems," he said. "There's not only a fair amount of gas, but the gas is very rich, so there are a lot of liquids that can be extracted. EOG and Marathon are already building liquids plants and gathering facilities."

Miller at Whiting emphasized it will take a huge number of wells to develop the volumes of hydrocarbons cited in the USGS study.

"Some of that will be fairly marginal stuff so it's going to take some pretty high prices to be able to exploit all of that potential," Miller said. "I think it actually may be there if prices stay high and you can drill these expensive wells and get some more marginal production versus what some operators are making in sweeter spots in the basin." ❑

For more information on this subject, visit the AAPG Web site. www.aapg.org

'Footprints' a concern

3-D Being Used More in Rockies

By LOUISE S. DURHAM
EXPLORER Correspondent

Domestic 3-D seismic data acquisition has long been a valuable practice, particularly in the Gulf of Mexico and nearby onshore areas, but less so for the Rocky Mountain region.

But that's changing significantly, according to AAPG member R. Randy Ray, a Denver-based consulting geologist and geophysicist.

"The Rockies historically don't have 3-D coverage like offshore and onshore Texas and Louisiana, but in the last 10 years we've been catching up to other areas in the U.S. in having more seismic acquired," Ray said. "As a result, new plays are emerging as data are shot – and there's a better understanding, particularly of the large resource plays."

Given the region's wide range of often-complex geology, 3-D seismic is a natural fit.

"In the Rockies we have a lot of structure and faulting," Ray said, "and when you see this on 3-D seismic it helps drive the plays and focus areas for sweet spot prospecting."

Ray's zeal for 3-D led him to assemble a technical session on the business value of 3-D seismic to be presented at an upcoming energy summit set for July 9-11 in Denver.

ROCKY MOUNTAIN ROUNDUP

The meeting, titled "Rocky Mountain Energy Epicenter," will be jointly hosted by the Colorado Oil and Gas Association and AAPG's Rocky Mountain Section. The organizers anticipate more than 3,000 attendees.

"The reason to make 'energy epicenter' the theme is that Colorado has become the focus of how to change oil and gas operations to make them more environmentally conscious and minimize footprints," said Ray, who will co-chair the event's 3-D seismic session.

"The governor is being very proactive in encouraging the best technology and best practices to keep Colorado beautiful, but at the same time keep it an energy producer."

Increased availability and use of 3-D seismic dovetails nicely with this focus.

"Three-D is a non-invasive technique for 'catscanning' the subsurface," Ray said. "Because of that, it provides the ideal data set to evaluate potential resources in areas of concern for environmentalists.

"It's a passive event on the surface and leaves a minimal footprint," he added, "and from the data you're able to pick the most prospective locations to consider for development instead of drilling more haphazardly."

Variety Shows

Ray emphasized the planned technical session that will address the business value of 3-D seismic is targeted for a broad audience – including geologists and geophysicists.

"We'll talk about how seismic brings value to the decision process of looking for oil and gas, and also how new speculative surveys are promoted," Ray said. "Instead of technical details of seismic, we'll stand back and look at the value of 3-D and how important it is to the growth of activity in the Rockies."

Company presenters will address an array of topics, including:

✓ Three-D for pre-planning drilling and forecasting reserves.

✓ Searching for deeper targets under old fields.

✓ Three-D as a path to successful decisions in O&G expenditures.

✓ Identifying areas for spec surveys on federal lands in the Rockies.

✓ Business drivers, challenges and multiple benefits of 3-D seismic when planning field development.

✓ Three-D seismic for shallow coalbed methane objectives.

"The session will point out active Rockies companies' views on why they're spending more of their budget money shooting 3-D in the Rockies," Ray said.

"It's paying off in a number of ways, including developing shale gas resource plays and in pore pressure prediction," he noted. "A lot of resource plays in the Rockies are overpressured, and seismic helps map out the overpressure cells."

Added Value

The use of 3-D seismic in the Rockies does more than just improve drilling results; it helps to locate horizontal wells, which are the method of choice for drilling in many plays in the region.

Ray noted the 3-D data also are highly valuable as a means to determine what level to target the wells and what direction to go laterally to intersect natural fractures.

"The business leaders in these companies today are starting to realize the seismic dollars are well spent in improving the business performance of drilling resource plays," Ray noted.

"The complete subsurface view from 3-D seismic allows companies to organize their large drilling programs, including location planning and permitting, optimizing reserve growth and forecasting results," he said.

"It's very important for corporate planning and budgeting." ❑

It's personal, it's growing

Geoblogosphere Communication

By DAVID BROWN
EXPLORER Correspondent

Everybody's talking at me.
I don't hear a word they're saying,
Only the echoes of my mind.
– Harry Nilsson

Geoscience information is getting personal.

In the past two years, the number of science blogs on the Web has grown remarkably.

And that's also true for geoblogs, or Web logs devoted to the geosciences. AAPG is also entering the blogoshpere. Watch for details.


Allison

"You can't ignore it," said AAPG member Lee Allison, Arizona's state geologist.

Allison, who received an AAPG Public Service Award in 2004, said he was the first state geologist to start blogging about local geology, and might be the only state geologist with an official blog.

You'll find his blog, **Arizona Geology**, at: http://arizonageology.blogspot.com.

While he still considers blogging an advanced communication tool, Allison said geologists can no longer ignore the wealth of information in blogs.

"That's like saying, 'I'm not going to have e-mail,'" he said.

"It's an amazing communication tool, one of a whole array of capabilities that are coming out," Allison noted. "This is becoming a very important source of information and communication in the industry."


Brumm

Kim Hannula writes the geoblog **All of My Faults Are Stress-Related**. She's an associate professor of geoscience at Fort Lewis College in Durango, Colo., and her blog appears at: http://shearsensibility.blogspot.com.


Hannula

Hannula said the oil and gas and mining industries are hoping to interest young people in geology careers. But right now, they're trying to communicate with a generation that can sometimes be hard to reach.

Blogs can bridge that gap, she believes. It might be helpful for some petroleum geologists to blog about what their jobs are like day-to-day.

"It's hard to balance the proprietary nature of business with the openness of blogging," she said. "On the other hand, it's a good way of communicating with students about the jobs that are out there.

"There are all sorts of mentoring opportunities, but one thing that's nice about blogging is that you can do it without buying expensive plane tickets," she added.

Maria Brumm is the grandmother of geoblogging, attaining a senior status from blogging online for six years. Brumm, a graduate student at the University of California at Berkeley, had her 27th birthday in April.

"For me, it started out as self-expression and practicing writing," she said. "It was a way for me to attract a community of people with like interests on the Internet.

"It's also about what life is like – and that's part of the outreach," Brumm noted.

Both the personal nature and the immediacy of geoblogging appeal to her.

Like most other geobloggers, though, she maintains an anchoring interest in geosciece.

"It's helped me to feel more comfortable about it, writing about science.

I think science blogging in general has really taken off. And it's timely – you can write a really current article," she said.

Everybody's got a story they can tell.
You know you're not the only one counting
On a quarter and a wishing well.
– Keith Urban

Brumm's **Green Gabbro** blog is posted at: http://scienceblogs.com/greengabbro/.

"I read a 'New Yorker' article about it, 'Blogging – The New Trend.' So I thought, 'Okay, I'll join the trend,'" Brumm said.

"Since I've been doing it for six years, I'm able to see how I've changed in that time," she added.

Today she's thinking about expanding into wiki editing, polishing the science entries on the Wikipedia online encyclopedia.

"I've been disappointed in the quality of the geology pages," she said. "It's one of the things that people turn to and it is kind of disappointing when it's not very good."

One of the best places to find links to geoblogs, science blogs and other blogs is Ron Schott's geoblog **Geology Home Companion** at: http://ron.outcrop.org/blog/.


Schott

"One of the reasons to go out there and look for geoblogs is if you're interested in geology. There are some interesting discussions, on relevant topics," said Schott, assistant professor of geology at Fort Hays State University in Hays, Kan.

Blogs can include information on current events, scientific literature and field trips, as well as pertinent discussion topics, Schott said.

See **GeoBlogs**, page 30

GeoBlogs

from page 28

He also said he approaches blogging from an educator's perspective.

"There are a lot of people using the Internet right now to get information. One of the reasons to blog is to put good information out there," he said.

"I think the more information about geology there is, the more interest in geology there will be," he added.

Schott came to the Internet early, but to blogging much later.

"I've had Web pages since very early on. I had a personal Web page when I was a graduate student in Wisconsin. At that time, Mosaic was the Web browser of choice," he recalled.

Because of his background, Schott is one of the few bloggers who runs a computer server to host his own blog. Most geobloggers use the free services available through Blogspot or Wordpress.

The motivation to write a blog is probably different for every individual blogger. Schott said blogging may or may not be right for you, but you won't know until you've tried.

"If you have something interesting to say, why not say it in a blog? One of my motivations is to make people more aware of the science of geology," he said.

Hannula said her blog began as a personal look at geology and a way to include musings on the science.

"It started partly as an outlet for things you would think about in the field that would never make it into a paper, but that are still part of doing the science, of doing geology," she said.

Blogs also serve as a way to reach out, attract attention, create a personal journal and work through issues professional and personal.

"I think it's different for everyone who does it. I know some people who do it to get into communication with non-scientists," Hannula said.

"There are a number of people who use it to work through their thoughts," she said.

"I use it that way a lot."

Ain't no tellin' lies.
Ain't no holdin' back.
Ain't no tip-toeing.
We too grown for that.

– Mary J. Blige

Allison said he was the first Arizona state official to begin a blog, and he attracted attention in the government because of it.

"My blog is very conservative – not politically, but conservative in nature. I'm treating it as the blog of the state geologist, not as my own blog," he said.

"I'm fairly certain that I'm the only state geologist blogging right now," he added. "I'm being a little cautious how I do this, because I know people are watching."

When Allison reads blogs, he looks for the social angle on geology, not so much the scientific viewpoint.

"I'm coming from the position of a scientist who's involved in public policy a lot. The most interesting blogs to me are the ones that discuss the intent of science, or science in a social setting," Allison said.

"This is a way to deal with science in the public arena, because it's fast-moving," he noted.

Blogs also can be very current, so "the emergency response aspect is also a piece of it," Allison observed.

As an example, he cited a recent rockslide that closed Highway 87 in Arizona. His blog became a current source of public information.

"Most of the early reports were, 'Well, it's somewhere on this 60-mile road,' and no one knew where it really was or what was going on," he recalled.

Allison was able to post exact location information and even photos on his blog site. Newspapers and other media were directing people to his blog, he said.

Geoblogs in general tend to feature more visuals – photos, drawings, maps – than many other types of blogs. And they usually combine personal and scientific views in an outgoing way.

"It tends to be very polite and friendly in a way that political blogs wouldn't be, unless people post about religion or climate change," Hannula said.

A geoblog reader could be anyone, from a seven-year-old student looking for information to a fellow geologist to a casual observer.

"One of the oldest things is that a mining company tried to headhunt me after reading my blog," Hannula said, "and I don't have a strong background in economic geology."

One of the most interesting developments in geoblogging is **The Accretionary Wedge**, a blog carnival with a geological theme hosted each month by a different geoblogger.

"The idea, basically, is that you put out a topic and you invite people to make comments on this particular topic," Schott said. "It actually kind of spurs people to write about things you might not have written about."

He appreciates that feeling of community and shared interest among geobloggers.

"One good thing about the geoblogosphere is that a lot of things we've done have been shared community things. There's no one dominant," he noted.

For anyone interested in geoblogs, there's certainly no shortage of reading material, science topics or current issues to consider.

"What I've discovered in the past year and a half is that this thing has proliferated at an amazing rate. It's really catching on," Allison said.

"I expect everyone to find blogs they keep reading or linking to. You can't ignore it, unless you just want to walk away from what's happening," he added.

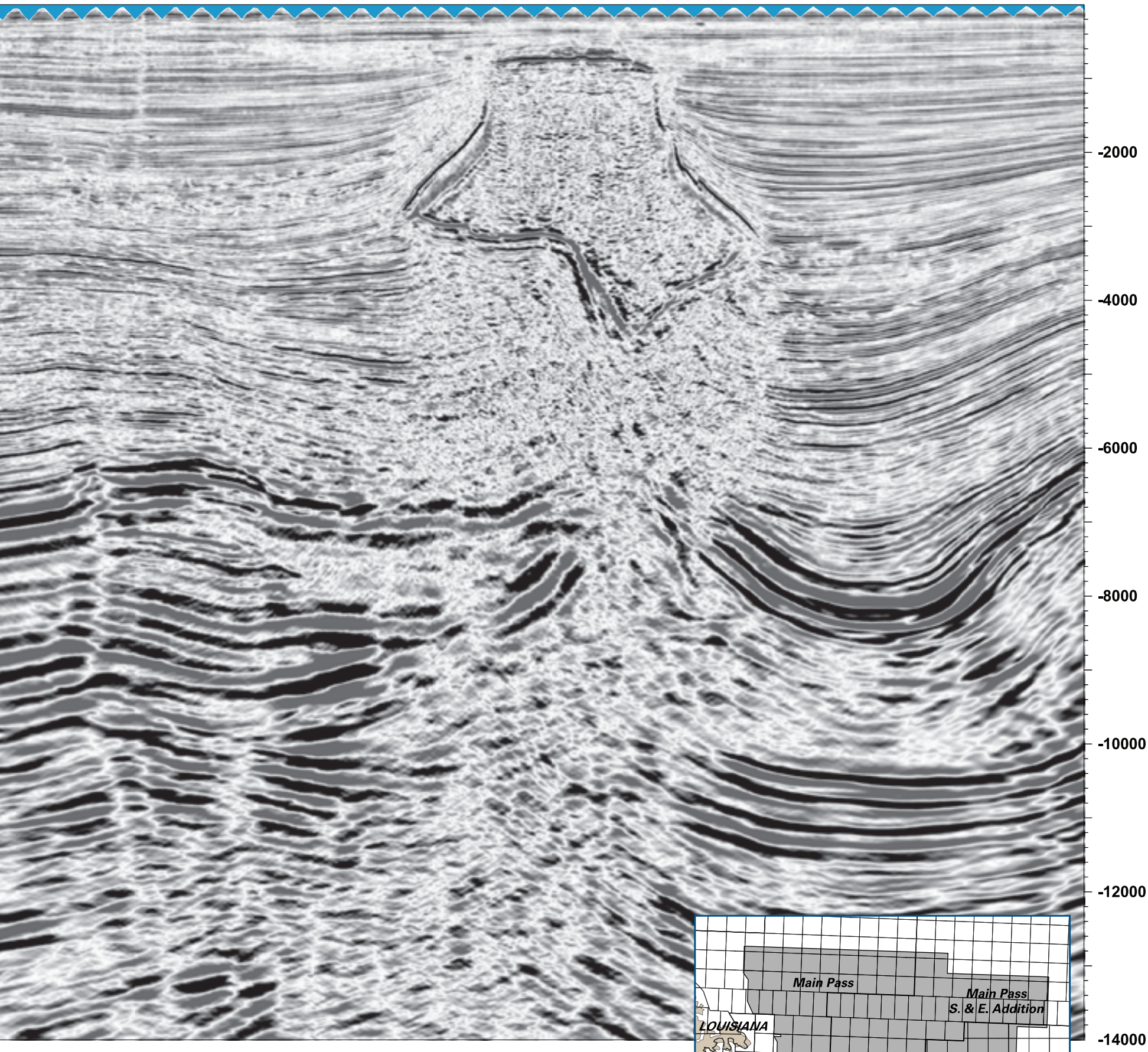
Just one warning: Blogs may be addictive.

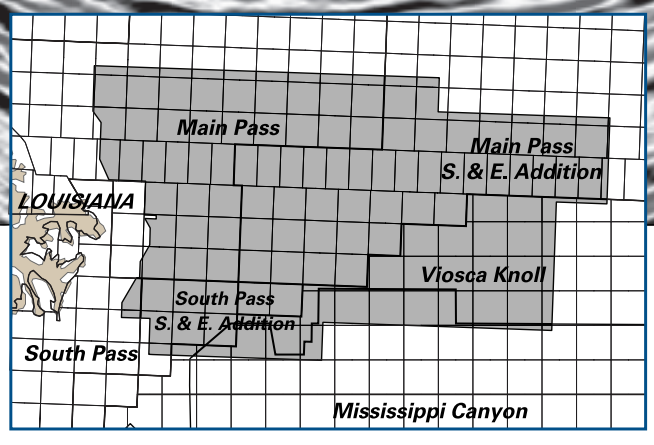
"I could probably spend all day reading blogs," Allison said, "and find wonderful stuff."

Say what you feel like,
Say how you feel.
You'll go backwards, but then
You'll go forwards again.

– Coldplay ❑

EPTH MIGRATION





The Turning Wave Kirchhoff PSDM follows the Pre Stack Time processing of the survey completed in 2007. The data was migrated to a depth of 16 km with a 8 km aperture.

For additional information on this survey or to arrange a personal data review please contact your TGS marketing representative at 713-860-2100.

Big crowds in San Antonio

Meeting Fueled by Upbeat Energy

The numbers told the story, but you didn't need "numbers" to know that the recent AAPG Annual Convention and Exhibition in San Antonio was a huge success.

All you needed to do was try walking through the crowded halls – and note the upbeat energy and smiling, almost giddy expressions – and you could tell something very good was happening in the technical sessions, in the exhibits hall and throughout the Henry B. Gonzalez Convention Center.

For the record, the 2008 convention attracted 7,526 registrants (from 73 countries), making it the third largest annual meeting since 2000; only the Houston meetings in 2006 (8,223) and 2002 (7,665) attracted more people.

The large turnout meant that having a place to sit in the technical sessions often became a status symbol, as onlookers lined the walls and sat on the floors to hear the presenters.

A large crowd also attended the opening session, which featured AAPG President Will Green's report on his year of representing AAPG around the world, followed by the awards ceremony honoring the Association's best.

Marlan Downey provided the session's emotional highlight as he honored the late Fred Meissner, this year's Sidney Powers Memorial Award winner, reading a "thank you speech" comprising Meissner's own words.

"The profession has been good to me and I have tried to return something back to it through sharing knowledge, through serving on committees and as an officer of various organizations I have belonged to," Downey read on Meissner's behalf.

"Thanks again to this wonderful organization for this great honor you have bestowed on me."

(A video of Downey's tribute can be found online at www.aapg.org.) ❑

HoD Straw Polls Create Comments

By LARRY NATION
AAPG Communications Director

Delegates approved proposed changes to the AAPG House of Delegates Rules and Procedures and Bylaws virtually without comment during the annual convention held in San Antonio.

However, it was two impromptu straw votes that stirred remarks from the 206 delegates certified by Patrick Gooding, chair of the Credentials Committee.

HoD Chairman Martin D. Hewitt guided the delegates through the House agenda and business was adjourned in ample time for lunch for the first time in recent memory.

In giving the report of the Newsletter Committee, Secretary/Editor Robert E. Webster posed a question to delegates concerning the all-electronic publishing of the HoD Newsletter, saving money and negating printing and mailing lag times.

In a straw poll, the House overwhelmingly voted in favor of the PDF-only newsletter. However, the handful of members opposed were vocal in their opposition. Webster stated that all delegates should be able to receive *The Delegate's Voice* in the format of their choice, and he would investigate the best means to deliver the newsletter either electronically or printed, if requested.


Hewitt

The next HoD newsletter, budgeted for printing and mailing in June, would proceed as in the past.

The other straw vote came up in new business during a discussion of the possibility of modifying the degree requirements for Active membership.

Vice President-Regions John Hogg began the discussion by asking for a sense of the delegates concerning keeping the requirements for a "degree in geological science" for a person applying for Active membership.

The dialog included the exclusionary aspect of the degree requirement as it affects geophysicists, geological engineers and others who otherwise would be interested in full membership.

It was noted that there are mechanisms for individual exceptions to the requirement, which are considered by the Executive Committee on a case-by-case basis.

Delegates voted overwhelmingly to send the issue to the Constitution and Bylaws Committee for consideration.

Voting Results

Changes approved by delegates included:

✓ An amendment dealing with how the number of delegates is determined for U.S. affiliated societies versus international Regions. The amendment was proposed to bring the Rules and Procedures in compliance with the AAPG's Constitution and Bylaws.

✓ A Bylaws change that gives the AAPG Executive Committee authority to expel a member who falsely states his or her qualifications on an application for AAPG membership.

Both proposals were adopted as presented.

Officers elected for 2008-09 were **Steve Sonnenberg**, chair-elect, and **Sigrunn Johnsen**, secretary/editor.

Sonnenberg is professor of geology and Charles Boettcher Distinguished Chair in Petroleum Geology at the Colorado School of Mines. He also is the first past president of AAPG to become leader of the House. He will assume the presidency in 2009-10.

Johnsen is senior geologist-field development for the North Africa and Middle East Department at RWE-Dea in Hamburg, Germany.

The new officers will assume office on July 1, with Chairman-elect George Bole, of Houston, assuming the HoD gavel.

Gooding noted that the 207 delegates at the San Antonio meeting was 89 percent of the 232 total House delegates – the highest percentage participating over the past 10 years. 117 were required for a quorum. ❑


Mohammed Al-Qahtani, (center) president and CEO of Aramco Services Co., accepts a gift from AAPG from AAPG President Will Green, left, and President-Elect Scott Tinker at a presentation commemorating Aramco's 75th Anniversary.

AAPG Executive Director Rick Fritz congratulates Ovidiu R. Lazar, the winner of a new jeep that was the grand prize of the annual meeting's inaugural "Search the Floor" contest. Lazar, a senior research geologist with ExxonMobil in Houston, said the jeep will be a gift for his wife, AAPG member Mirela Dumitrescu, also with ExxonMobil.

DPA: Rules.'Don't Break 'em'

Citing the need for more energy resources, Texas Railroad Commissioner Elizabeth Ames Jones told the Division of Professional Affairs luncheon attendees there's a lot of potential still untapped.

One of the "potentials" she cited is the super-deep deposits, noting that of the 18,000 or so drilling permits granted last year, only 30 were deeper than 20,000 feet.

She also said the U.S. energy policy is anemic and called for opening of federal lands for exploration, including the Alaska National Wildlife Refuge.

She knows a little bit about the oil patch, being a sixth generation Texan, the daughter of 50-year AAPG member Gene Ames Jr. and the brother of Gene Ames III, chairman of the San Antonio AAPG Annual Convention and Exhibition.

In the course of her presentation, Ames Jones clicked off a number of the names of long-time friends and acquaintances in the room, noting the accomplishments and contributions many had made to the industry in the past.

As a member of the commission that regulates the state's oil and gas, propane, mining and intrastate pipeline industries, Ames Jones also told the group "the rules that are in place are in the best interest of everyone. Don't break 'em."

– LARRY NATION

EMD: Coal Research Needed

Yes, there might be 250-300 years worth of coal reserves in the United States as noted in a 1974 study – but new findings show the reality is that only a percentage of that coal is a viable resource, Robert B. Finkelman said during his talk at the Energy Minerals Division's luncheon during the recent AAPG convention in San Antonio.


Finkelman

Due to technical, cultural, economic and infrastructure limitations, presently there is actually more likely sufficient coal energy through 2030, with reserves for probably 100 years, he said.

Finkelman, who recently retired from the U.S. Geological Survey and is currently affiliated with the University of Texas at Dallas, said the recent report requested by the U.S. Senate "is an opportunity for attention," even though "the findings don't convey a sense of crisis."

In noting some of the hurdles coal faces, Finkelman cited studies correlating various diseases with the trace elements present in coals – including arsenic, selenium and mercury.

For "coal to burn brightly in the future," which was the title of his talk, he called for expanded research into the critical issues facing coal, including health and environmental effect, systems for advanced mining and processing and CO_2 sequestration capacity.

– LARRY NATION

Discovery Forum

Legendary explorationist Bob Gunn, an AAPG Honorary Member and Sidney Powers Memorial medalist, takes his turn at the podium for the "Discovery Thinking" forum, which attracted standing room-only crowds in San Antonio. Joining him (from left) were session co-chairs Charles Sternbach and Ted Beaumont, plus fellow explorationists Marlan Downey, Herbert Hunt, Dudley Hughes, Alfredo Guzman and Clayton Williams.

Company style, people shaped success

GOM A Big Player in 'Shell Game'

By BARRY FRIEDMAN
EXPLORER Correspondent

Tyler Priest believes to understand the history of offshore exploration in the United States, you have to understand the story of Shell in the Gulf of Mexico.

Some of that is understandable – Priest worked for Shell as the company's historian – but his point is based more on production than public relations.

"Next to Prudhoe Bay, the most significant additions to U.S. oil and gas reserves have come offshore in the Gulf of Mexico," says Priest, director of Global Studies in the Bauer College of Business at the University of Houston.

Priest, as keynote speaker for the All-Convention Luncheon at the recent AAPG Annual Convention in San Antonio, described in colorful detail how Shell played the key role in extending the domestic petroleum base.

"It not only generated new investment opportunities – for other oil firms and service companies in addition to Shell – but provided for a measure of energy security as overall production declined and as the nation became more dependent on overseas sources."

According to Priest, the most important theme in the postwar history of the U.S. petroleum industry, on the E&P side, "was the effort to fight the decline in domestic oil production."

So the question: How and why was Shell at the forefront of that battle?

Priest laughs, saying it would require a full-length book to tackle that subject (a book he's actually written: *The Offshore Imperative: Shell Oil's Search for Petroleum in Postwar America: Kenneth E. Montague Series in Oil and Business History*).

Nevertheless, as he said in San Antonio, the answers have to do with Shell's unique relationship with its parent company, Royal Dutch, and its own competitive position within the industry.

Priest

People Who Need People

Priest said some of what made this possible was need, some circumstance.

"First, Shell Oil inherited a technological orientation in E&P from the Royal Dutch side of the group," he said. "Shell got a late start (1912) in the United States, and the Dutch representatives sent to this country bred into the organization a commitment to finding technological solutions as a way to gain competitive advantage."

Moreover, he adds, Shell's late start in this hemisphere actually proved to be an advantage.

"Shell Oil did not have the kind of huge onshore lease positions along the Gulf Coast and California that its larger competitors did," he said. "Company leaders thus had to look to virgin frontiers, and offshore beckoned."

And, according to Priest, dealing with such a virgin took individuals with a unique combination of determination, creativity, stubbornness and resilience – especially considering the region's potential.

"Since the 1940s, the Gulf of Mexico has been the offshore laboratory and proving ground for new technologies, advancements in petroleum geology and geophysics, and innovative engineering and commercial practices," he observed.

"Shell recruited and hired the smartest people they could find, exposed them to all parts of the business and gave them the support and latitude to seek technological solutions to upstream challenges," he continued. "The technical staff worked in cross-disciplinary teams long before "teamwork" became a fashionable business-school buzzword.

"One offshore engineer who worked on early floating drilling designs recalled that 'we were limited only by our imaginations.'"

The executives were both engineers and geoscientists, enabling them to understand both the technical and business side of oil exploration.

"These executives had a firm grasp of the market, geological and political characteristics of oil development in the United States, and they aggressively pursued the company's core mission of not only replacing but adding to its hydrocarbon reserves."

Priest said the GOM is unique as much for what it is as what it's not.

"Unlike most petroleum provinces in which discoveries have been concentrated in a short span of one to three decades, substantial discoveries have been made in the Gulf basin for the past nine decades."

To use a baseball term, the GOM has played more "small-ball" than other vast reserves in the hemisphere.

"In contrast to the major provinces of the world where hydrocarbons are concentrated in a small number of world-class 'giant' fields (fields with a known recovery of more than 500 million barrels of oil equivalent)," Priest said, "the Gulf basin has yielded thousands of smaller fields of less than 50 million boe, as well as 'large' fields of 50 to 500 million boe and giant fields."

This unique dynamic created opportunities for a wide range of companies and oil hunters – and for an even greater number of subsidiary businesses.

The GOM's gradually sloping, deltaic plain permitted experimentation with building freestanding structures and other technologies in the open water, according to Priest.

Presently there are nearly 4,000 active platforms servicing 35,000 wells in the continental shelf waters off Louisiana and Texas, and 29,000 miles of pipelines (now routinely exploring in 10,000 feet and producing in 5,000 feet).

The GOM, on an oil equivalent basis, provides close to 25 percent of U.S. oil and gas production, Priest said – which already tops Texas and will soon surpass Alaska.

For more information on this subject, visit the AAPG Web site.

Hydrocarbon brothers duke it out

It's Cleaner Gas vs. Cheaper Coal

By KEN MILAM
EXPLORER Correspondent

Energy and politics is always a volatile mix.

The competition between coal and natural gas lately has taken on aspects of a political campaign, complete with charges, counter charges, big spending and a little old-fashioned mud slinging.

The prize: becoming the resource of choice for the next phase of the United States' energy future.

Big bucks have been spent in efforts to sway the public on the question of whether to build coal- or gas-fueled power plants. Full-page newspaper ads, high-profile interviews and Internet writings tout the virtues of natural gas and highlight the challenges of making coal a clean-burning fuel.

And then there's natural gas proponent Denise Bode, who opened a seam of controversy recently when she wrote in her Internet blog that government research dollars would be better spent on finding and producing gas than on developing clean coal technology.

Bode, CEO of the American Clean Skies Foundation (ACSF), a Washington, D.C., think tank devoted to advancing the use of natural gas, applauded the U.S. Department of Energy's decision to pull out of FutureGen, a $1.8 billion public-private project to design and build a near-zero emissions coal-fueled power plant.

She went on to criticize President George W. Bush's proposed budget for including $156 million for FutureGen, $85 million for a "Clean Coal Power Initiative" and $407 million for advanced coal research.

National Mining Association President Kraig Naasz called Bode's criticisms "simply perverse."

Firing back in a widely distributed letter to Bode, Naasz chastised Bode, Clean Skies and Chesapeake Energy for "denigrating competing fuels" instead of promoting the positive aspects of their own resource.

Clean Skies was founded by Chesapeake founder, president and CEO Aubrey McClendon, who serves as the foundation's president and chairman.

In a telephone interview from NMA's Washington headquarters, Naasz said more recent Chesapeake ads "are now void of the language we found objectionable."

In her blog, Bode responded to Naasz' letter, defended her earlier statements and said she would welcome a chance to meet with Naasz and discuss energy and environmental issues. (Repeated requests for an interview with Bode were unsuccessful.)

A Bigger Pie?

Others have taken government and coal interests to the woodshed over the billions being spent to develop clean coal technology when, they say, a clean-burning alternative is already here.

Writing in the ACSF journal, "American Clean Skies," GHK founder and AAPG member Robert Hefner III said, "'Clean coal' must be seen as nothing more than a dirty trick used by a 19th-century industry willing to do almost anything to keep from going out of business."

In a *Newsweek* interview, Hefner advocated taxing coal and oil as major producers of carbon dioxide, a greenhouse gas.

Naasz said that instead of jockeying for industry specific subsidies and tax break, energy industries should "identify the challenges and lock arms.

"Instead of fighting over slices of the pie, we should grow the size of the pie," he said. "The nation is going to need access to all available fuels – coal, natural gas, nuclear."

"Traditionally, Congress dedicates funding to one or the other fuel source," said Carol Raulston, NMA vice president for communications.

Amid talk of "energy independence," both sides boast of abundant domestic resources.

"We have a 250-year supply of coal in this nation – more than the Mideast has oil," Naasz said.

Domestic natural gas production and reserve estimates keep going up as new techniques unlock previously unrecoverable shale plays.

Not only is the United States coal-rich, it has the largest resource of oil shale in the world, according to various government and industry estimates.

Newer coal plants handle most of the pollutants efficiently, but large quantities of CO_2, a greenhouse gas, produced by burning coal remain a bugaboo.

Natural gas produces about half the CO_2 that coal does.

While there are markets for CO_2, such as enhanced oil recovery efforts, the supply outstrips demand, Raulston said.

"The real effort is to increase the efficiency of plants," she said. "A 1 percent increase in efficiency equals a reduction of 2.5 tons of CO_2 emissions."

"Coal power is cleaner than it's ever been," Naasz said.

"There has been a 70 percent reduction in emissions over the last 30 years ... and a coal plant built today is 90 percent cleaner than the one it replaces," he said.

"CO_2 capture and storage capability is a technology that addresses greenhouse emissions," he said. ❑

For more information on this subject, visit the AAPG Web site. www.aapg.org

African Region Picks Leaders

Newly elected AAPG Africa Region leaders from five diverse countries have taken office and will serve two-year terms.

Following the recent election using AAPG's online voting process, the officers from Ghana, Nigeria, Morocco, South Africa and Egypt assume responsibility to grow membership and enhance delivery of AAPG services to geoscientists in the Region.

Also elected for three-year terms were the Africa Region member of the AAPG Advisory Council and four delegates to the AAPG House of Delegates.

The new Region leaders are:

❒ President – **James Kofi Agbernorto**, Ghana National Petroleum, Ghana.

❒ President-elect – **Nosa Omorodian**, Schlumberger, Nigeria/Houston, Texas.

❒ Vice president – **Haddou Jabour**, ONHYM, Morocco.

❒ Secretary/Treasurer – **Adedoja Ojelabi**, ChevronTexaco, Nigeria.

❒ Advisory Council – **Joe Ejedawe**, Shell International E&P, Nigeria.

❒ House of Delegates:

✓ **Bayo Akinpelu**, Chevron, Nigeria/San Ramon, Calif.

✓ **Bill Bosworth**, Apache, Egypt.

✓ **Almoundir Morabet**, Tamounda Consulting, Morocco.

✓ **Varsha Singh**, PetroSA, South Africa.

SA Award Winners Selected

Winners of this year's Matson and Braunstein awards, given to those whose technical presentations have been judged the best for the recent AAPG Annual Convention and Exhibition, have been announced.

The winners will receive their awards during the opening ceremony of next year's annual meeting, set June 7-10 in Denver.

The winners are:

✓ George C. Matson Award (for best paper) – **Mark Knackstedt**, with Australian National University, Canberra, Australia, for the paper "Carbonate Petrophysical Parameters Derived from 3-D Images."

Knackstedt's co-authors are **Mahyar Madadi**, **Christoph Arns**, **Gregor Baechle** and **Gregor Eberli**.

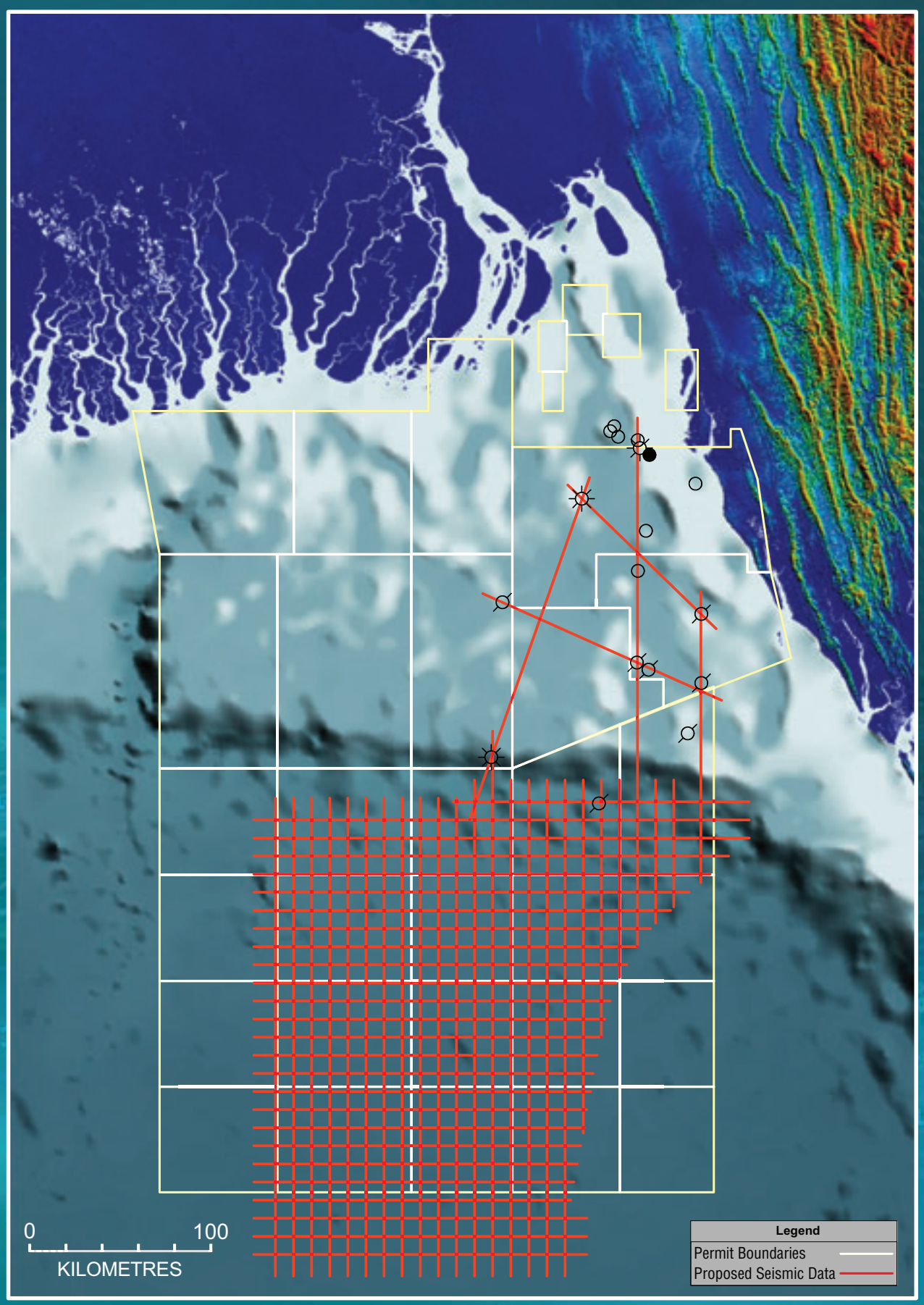
The paper was part of the session on "New Directons in Carbonate Reservoir Characterization."

✓ Jules Braunstein Memorial Award (for best poster) – **Tim Dooley**, **Michael Hudec** and **Martin Jackson**, all with the Jackson School of Geosciences at the University of Texas at Austin, for the poster "Dismembered Sutures Formed During Asymmetric Salt-Sheet Collision."

Their poster was part of the session on "New Insights in Allochthonous Salt Tectonics." ❑

Bangladesh Deep Focus

Non-Exclusive Long Offset 2D Seismic Acquisition



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GEOPHYSICALcorner

Questions? VSP May Have Answers

(The Geophysical Corner is a regular column in the EXPLORER, edited by Bob A. Hardage, senior research scientist at the Bureau of Economic Geology, the University of Texas at Austin. This month's column deals with the potential of vertical seismic profiling.)

By BOB HARDAGE

Vertical seismic profiling (VSP) began to be popular among non-Soviet scientists in the late 1970s, about the time that my previous employer, Phillips Petroleum Company, and our partners were trying to determine development strategies for newly discovered fields in the Greater Ekofisk area of the Norwegian North Sea.

Hardage

Resource evaluations and development planning at Ekofisk and Eldfisk had to be done with 2-D seismic data at that time – and one of the controversies regarding development of these fields centered on the famous "collapsed zone" atop each structure.

One 2-D seismic profile of 1970s vintage that crosses Eldfisk field is displayed here as figure 1 and shows a classic example of the apparent collapsed structural crest that had to be factored into early field development plans.

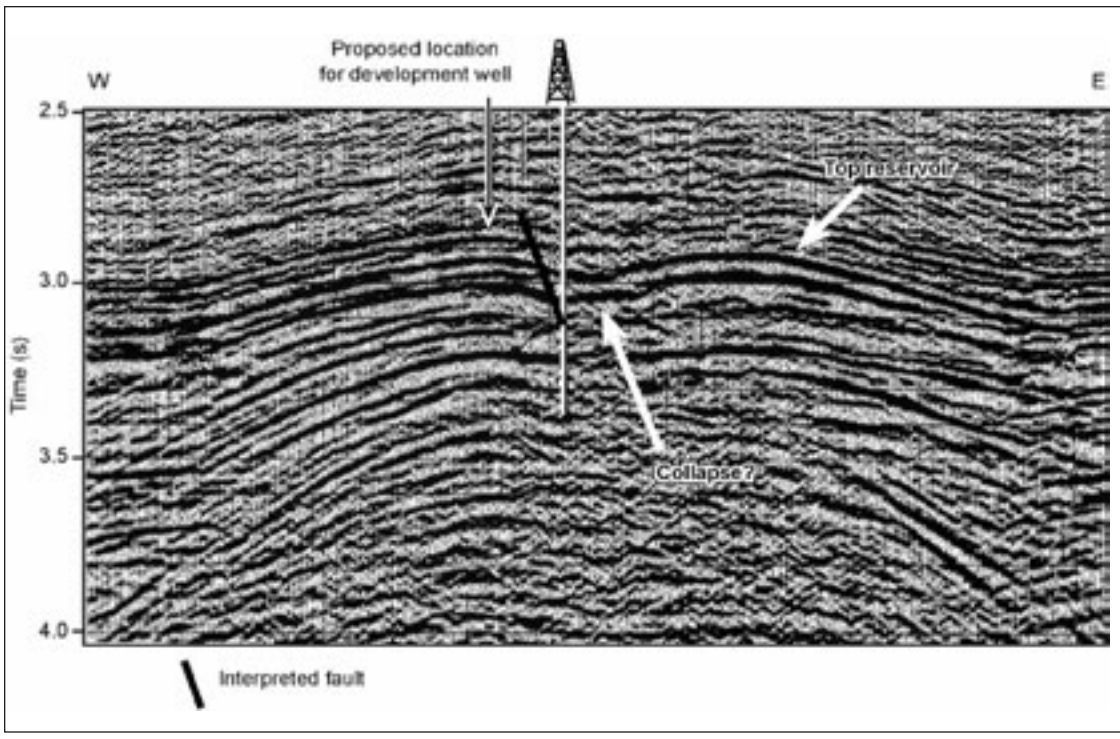

Figure 1 – 2-D seismic profile, 1970s vintage, traversing the Eldfisk field. The data show an apparent structural collapse across the crest of the structure near the well location. Is the graben real? Is the interpreted fault really there?

Two camps existed among the partner teams that had to decide how to proceed with development drilling:

✓ Camp 1 said, "The anticline has a true collapsed top and reserves are reduced."

✓ Camp 2 said, "There is a low-velocity chimney in the thick shale above the structure that creates a velocity pull down and there is no collapsed top."

Camp 1 wanted to interpret a fault where one is drawn on the profile; camp 2 believed that there was no fault, just a velocity-generated time sag.

* * *

A VSP project was designed to acquire information to help resolve these two opposing structural interpretations – the VSP geometry that was used is illustrated as figure 2.

An obligated field-evaluation well (figure 1) had to be drilled and was used as a VSP receiver well to decide where to place the next evaluation well. The VSP source was offset 2.5 kilometers from the well, so that if there were a low-velocity gas cloud above the crest of the structure, the down-going VSP raypath would pass under the velocity anomaly (figure 2).

Up-going reflected VSP raypaths to the borehole receivers would still pass

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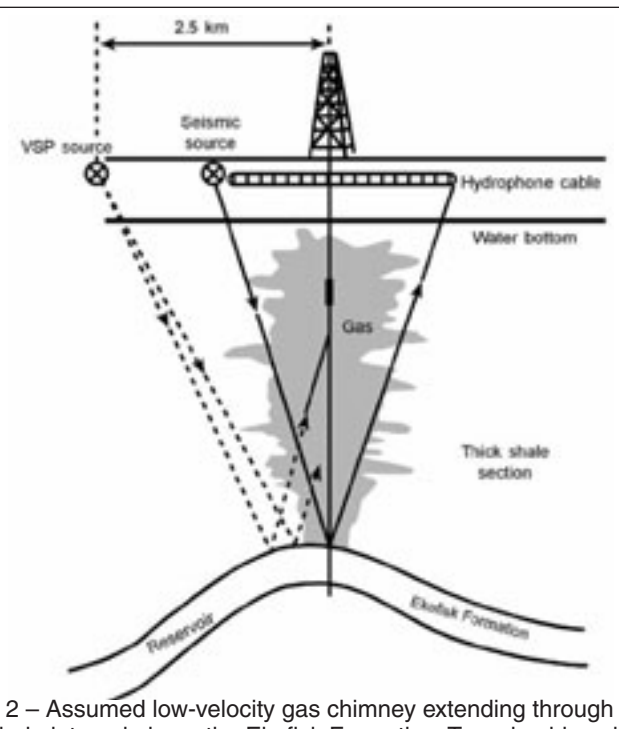


Figure 2 – Assumed low-velocity gas chimney extending through the thick shale interval above the Ekofisk Formation. Towed-cable seismic data have significant time sags when their two-way raypaths have to pass through the low-velocity chimney. In contrast, offset-VSP data have minor time delays, because only short segments of each VSP travel path have to traverse the low-velocity zone.

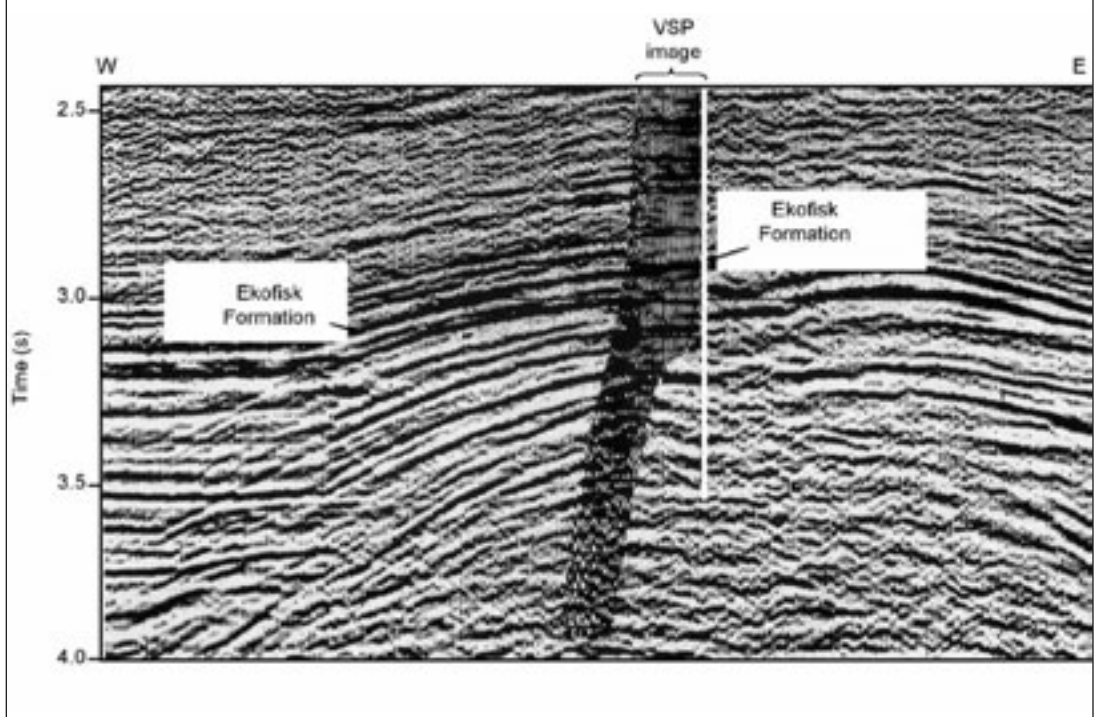


Figure 3 – Comparison of VSP image and towed-cable image: The VSP data show that there is no significant structural collapse, which was the correct answer at this well location.

continued from previous page

through part of the low-velocity zone.

Because only a small part of the total VSP travel path traverses the low-velocity zone, any time delays introduced into VSP reflection events would be much less than the time delays associated with two-way travel paths through the low-velocity interval when towed-cable data are acquired. One combination of down-going and up-going towed-cable raypaths is shown in figure 2.

The VSP image that was produced is inserted into the 2-D towed-cable image in figure 3; the VSP data show that the top of the Ekofisk Formation climbs smoothly and continuously to form an unbroken anticline crest at this location.

Although Camp 2 won the argument at this well location, the controversy of collapsed anticline crests remained in other parts of the greater Ekofisk development program. Not unexpectedly, some graben collapses were found at some crestal well positions (and were again verified by VSP imaging).

The moral of this story: Properly designed VSP surveys can answer numerous questions about geological complexity near a receiver well. VSP imaging is often the best way to undershoot a shallow geological complexity to see a deeper target.

* * *

In this example, cost of the VSP survey was repaid many times over by the value of the information provided by the VSP data. The presence or absence of several million barrels of oil was at stake when field developers had to decide whether Eldfisk lost a big part of its structural crest.

With modern 3-D seismic technology we can do a much better job of creating reliable images of structure beneath complex velocity layering than was possible in the 1970s.

However, there will still be locations – even today – where VSP imaging can provide information that is difficult to acquire using surface-based receiver technologies. ❑

PROFESSIONALnewsbriefs

Kevin R. Allison, to vice president-exploration, Gold Point Energy, Englewood, Colo. Previously senior geophysicist, Delta Petroleum, Denver.

Byron Beck, to geophysical manager, GPX International, Kuwait. Previously principal geophysicist, Cairn India, Delhi, India.

Carlos Bianchi-Ramirez, to exploration manager, SK Energy Sucursal Peruana, Lima, Peru. Previously senior exploration geologist, Petro-Tech Peruana S.A. Sucursal Peruana, Lima, Peru.

Fabrizio Bolondi, to exploration and new business manager, ENI Pakistan, Karachi, Pakistan. Previously exploration division manager, Nigerian Agip Exploration, Lagos, Nigeria.

Jhonny E. Casas, to senior geologist, Gazprom Latin America, Caracas, Venezuela. Previously reservoir geology leader, SINCOR (Sincrudos de Oriente), Caracas, Venezuela.

George Eynon, to board member, Energy Resources Conservation Board (Alberta's oil and gas sector regulatory body), Calgary, Canada. Previously vice president, Canadian Energy Research Institute, Calgary, Canada.

Michael A. Fenton, to managing director-Libyan Seismic Data Processing and Analysis Center, Fusion Libya Petroleum Services, Tripoli, Libya. Previously independent consultant, Tripoli, Libya.

William L. Fisher has a published autobiography, *Leaning Forward*, chronicling his journey as student, geologist, longest-serving director of both the Bureau of Economic Geology and the Geology Foundation, U.S. Assistant Secretary of Energy and Minerals under President Gerald Ford, first dean of the Jackson School and past president of AAPG. He is professor and holder of the Leonidas T. Barrow Centennial Chair in Mineral Resources, Department of Geological Sciences, Jackson School of Geosciences at the University of Texas at Austin and chairman of the AAPG Foundation Trustees.

Timothy J. Galvin, to technical manager-business development, Chevron Asia Pacific Exploration & Production, Singapore. Previously manager-opportunity assessment and asset management, Chevron, Beijing, China.

Randall Hunt, to team leader-deepwater Santos Basin exploration, BG Group, Rio de Janeiro, Brazil. Previously staff geophysicist, Chevron Indonesia, Jakarta, Indonesia.

David H. Miller, to exploration manager, L.O.G. Energy Exploration, Houston. Previously geologist, Paloma Resources, COP and EOG, Houston.

Kim Morrison, to business development manager, Oilex, Perth, Australia. Previously onshore exploration team leader, Woodside, Tripoli, Libya.

Leslie O'Connor, to president, MHA Petroleum Consultants, Denver. Previously vice president, MHA Petroleum Consultants, Denver.

Dave Richers, to geologist/geochemist, Geomega Inc., Boulder, Colo. Previously independent consulting geologist, EnCana Oil & Gas, Denver.

Joseph P. Smith, to geologist, Petroleum Development Corp., Bridgeport, W.Va. Previously geologist, EnCana Oil & Gas, Dallas.

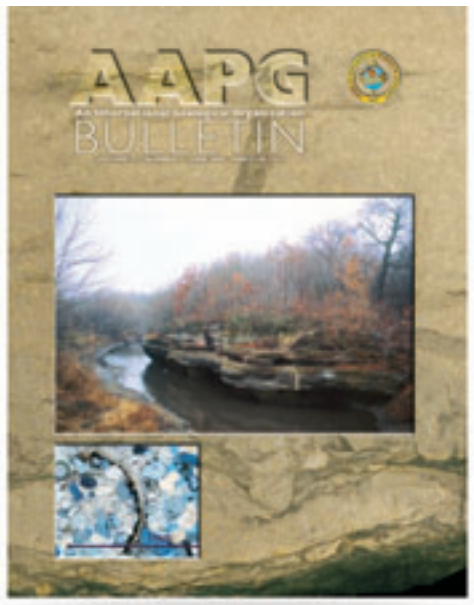
Rich Snyder, to geological manager-southern and west districts, Chesapeake Energy, Charleston, W.Va. Previously senior geologist-west district. Chesapeake Energy, Charleston, W.Va.

Artur Stankiewicz, to subsurface and planning manager, Shell Abu Dhabi B.V., United Arab Emirates. Previously rapid deployment team lead, Shell International E&P, The Hague, Netherlands.

David M. Thomas III, chief executive officer, Trey Resources, Midland, Texas. Previously vice president-exploration and land, Concho Resources, Midland, Texas.

Debbie Vader, to senior geologist, Panther Energy, Tulsa. Previously senior staff geoscientist, Williams Companies, Tulsa.

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



The June 2008 cover of the AAPG Bulletin

More science than you can shake a pick at.

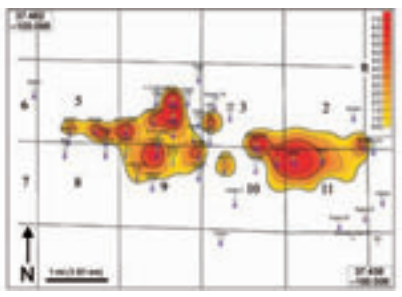
GEOLOGIC NOTES

Uranium depletion across the Permian/ Triassic boundary in Middle East carbonates: Signature of oceanic anoxia

Stephen N. Ehrenberg, Tore A. Svana, and Peter K. Swart

A decrease in uranium content across the Permian/Triassic boundary in a thick section of shallow-carbonates from offshore Iran suggests a global depletion of uranium in earliest-Triassic seawater due to deep-ocean anoxia and resulting uranium precipitation in oxygen-poor sediments.

Manuscript received September 4, 2007



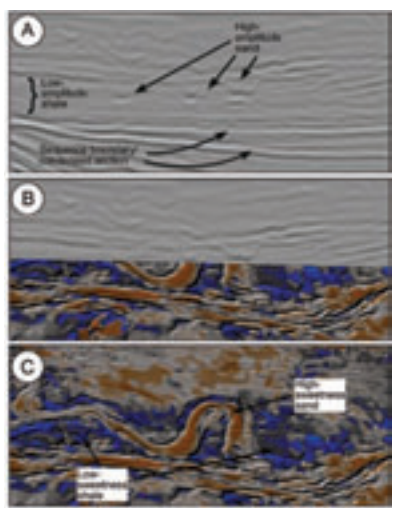
GEOHORIZONS

Flow unit modeling and fine-scale predicted permeability validation in Atokan sandstones: Norcan East field, Kansas

Saibal Bhattacharya, Alan P. Byrnes, W. Lynn Watney and John H. Doveton

Characterizing the reservoir interval into flow units is an effective means for subdividing the net-pay zone into discreet layers for simulation but requires reliable estimates of permeability. A new method provides robust flow unit characterization for various types of reservoirs.

Manuscript received July 18, 2007



GEOHORIZONS

Channel detection in 3-D seismic data using sweetness

Bruce S. Hart

Sweetness is a seismic attribute that, especially when used in conjunction with coherency, can be very useful for channel detection in deep-water clastic and coastal plain settings. Images of channels derived from sweetness are presented and potential applications discussed.

Manuscript received December 3, 2007

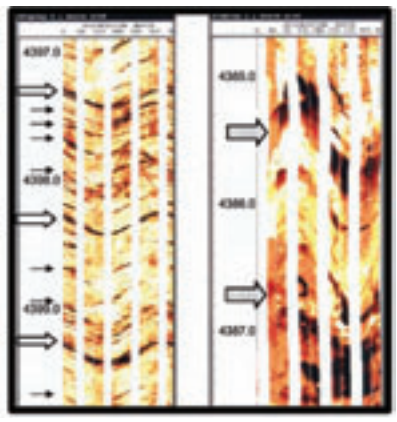
GEOHORIZONS

Fracture permeability created by perturbed stress fields around active faults in a fractured basement reservoir

Tetsuya Tamagawa and David D. Pollard

Flow properties in a fractured basement reservoir in the Yufutsu Field, Japan, indicate that wells penetrating areas near active faults have a high potential for hydrocarbon production due to a perturbed stress field in which horizontal stress is rotated ~90° to the regional stress.

Manuscript received September 25, 2007



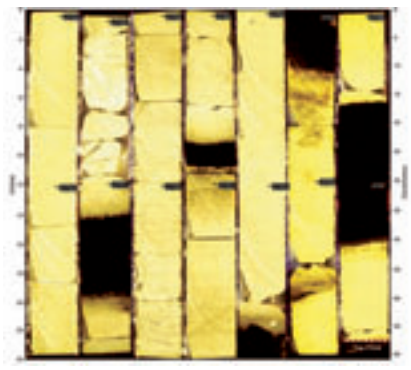
ARTICLE

Calcite cement in Permian deep-water sandstones, Delaware Basin, west Texas: Origin, distribution, and effect on reservoir properties

Shirley P. Dutton

Calcite cement is the dominant control on reservoir quality in turbidite sandstones of the Upper Permian Bell Canyon Formation, Delaware Basin, Texas. The origin and distribution of these cements are determined and the effects on reservoir properties discussed.

Manuscript received September 25, 2007



ARTICLE

Stratigraphic well correlations for 3-D static modeling of carbonate reservoirs

Jean Borgomano, François Fournier, Sophie Viseur, and Lex Rijkels.

The addition of a priori knowledge to stratigraphic well correlation in carbonate sedimentary systems aids the relation of core- and well-scale heterogeneities to those at reservoir and flow unit scales during static reservoir modeling, which is critical to establishing a coherent geological and petrophysical concept.

Manuscript received July 13, 2007

Members may access the AAPG Bulletin online at http://www.aapg.org/June_Bulletin/

Also, submit your next paper for consideration via http://www.aapg.org/Bulletin/
The AAPG is diligent about timely publication of the geoscience of the day.

REGIONS&sections

OU Leads Long List of IBA Winners

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

By CAROL McGOWEN
Regions and Sections Manager

A team of five graduate students representing the School of Geology and Geophysics at University of Oklahoma rose to the top level and won first place in the second annual IBA competition – but the 2008 AAPG Imperial Barrel Award program produced winners on all levels. The event was held at the recent AAPG Annual Convention and Exhibition in San Antonio.

The IBA program is designed to allow teams of students the chance to evaluate the petroleum potential of a sedimentary basin and to test their creative geological interpretations. This is all done within strict time limits of five-to-six weeks, with the results presented to – and judged by – an independent panel of petroleum industry experts.

Through this program, young explorers are motivated to develop their creative oil-finding skills at an early stage in their geological training, using real world data and working within a simulated industry environment, i.e. limited data, short study period and an even shorter presentation time.

The team from the University of Oklahoma – including faculty adviser Roger Slatt, second from the right – celebrates winning this year's Imperial Barrel Award competition.

Student Winners

From the original 34 university teams, 12 teams advanced to the global finals competition. On Friday preceding the convention these 12 teams competed in the semi-finals round for the chance to participate in the finals presentation the following day.

From that competition, six teams advanced to the final round, presenting to a new panel of judges on Saturday.

Suspense and anticipation lingered until the Student Reception and awards ceremony on Monday night. There, amid a crowd-filled room, IBA Committee Chair, Connie Mongold, announced the winning teams. In reverse order, they are:

✓ 6th Place – University of Louisiana-Lafayette.
✓ 5th Place – University of West Virginia.
✓ 4th Place – University of Alberta.
✓ 3rd Place – Texas Christian University ($5,000 prize).
✓ 2nd Place – Imperial College, London ($10,000).
✓ 1st Place – University of Oklahoma ($20,000).

All were recognized with a standing ovation and Olympic-style medals.

The first place team members are Elizabeth Baruch, Roderick Perez, Romina Portas, Carlos Russian and Carlos Santacruz, with Roger Slatt, faculty adviser. All are first year master's students, and none have yet had company internship experience.

Their prize money will go into the coffers of the OU AAPG Student Chapter in support of student activities.

However, team member Elizabeth Baruch found the real prize of IBA to be the invaluable training.

"We faced situations that were completely new and required group commitment and support, making our own decisions about what we considered important," she said, "and defining how the project had to be oriented gave us the feeling of an actual, everyday industry environment."

Even those who finished lower in the competition found reason to cheer.

"It (IBA) means a lot more than I initially thought it would," said Andrew J. Mumpy, a member of the University of Alberta team. "I had no idea how big of a deal this thing had become …

"This was the best learning experience I have had in university at any level," Mumpy said. "I easily learned as much in those two months as I have in any class I've ever taken, and the team dynamics and strict deadlines really added to the value of the experience.

"Ideally, I think this competition would be a requirement for any student working on an advanced degree in petroleum geology," he added. "Despite the fact that I had almost no previous experience doing this type of work, by the time IBA was over I felt like I would be comfortable going to work in an exploration department at any company."

Faculty Winners

The competitiveness of the students'

See **R&S**, page 48

The North Sea after 40 years.

I am pleased to invite you this two-day conference in Oslo 6th and 7th October. The aim of the conference is to pose the question - After more than 40 years of varied upstream activity in the North Sea petroleum province what are the key learning to take forward into the future? A set of invited presentations will track the creation of the present day North Sea petroleum province through the decades, highlighting the critical factors for success and the opportunities and challenges ahead.

Geir Lunde, General Chairman

Day 1

Looking Back – History of the North Sea: Geology and E&P
A. Armour (Revus)

The Schoonebeek Field (past-present-future)
M. de Keijer (NAM)

The Groningen Field- Managing a Giant (past-present-future)
J. Steenbrink (NAM)

The Ekofisk Field (past-present-future)
H. Hermansen (ConocoPhillips)

Technology Enablers for the Successful development of the Brent Field (past-present-future)

Gullfaks Field - Towards 2030 (past-present-future)
P. Helland (StatoilHydro)

The Role and Status of E&P Technology from a North Sea Perspective: History and Future
S. Strandenes (PGS)

The Forties Field (past-present-future)
J. Crowley (Apache)

Elgin/Franklin: What Could We Have Done Differently?
E. Festa and O-P. Hansen (Total)

The Draugen Field:
Even On World Class Reservoirs People Make The Difference
N. A. Horvei (Shell)

Schiehallion Field
'invited' (BP)

The Ormen Lange Field
P. Kjernes (StatoilHydro)

Buzzard Soars To Success:
The Discovery and Development of a Billion Barrel Oil Field in a Mature Basin
M. Burdek (Nexen)

Day 2

Looking Forward – Future Challenges of North Sea
T. Dodson (Statoil)

The Luno Discovery and the Future of N/UK Exploration
H. Ronnevik (Lundin)

The Troll Field (past-present-future)
T. Madsen (StatoilHydro)

HR Perspectives on the North Sea Petroleum Industry
H. Aalheim (StatoilHydro)

The Next Generation's View of the Future
A. Korevaar/M. Nyrud (Shell/Sagex)

Environment In Focus
A. K. A. Sjotveld (KonKraft)

A New Paradigm:
Oilexco, from New Entrant to the Most Active Driller in the UKCS
R. Christensen (Oilexco)

The Challenge of Deep HPHT Exploration
J. Mathew (ConocoPhillips)

New Technologies Employed with Success in the Danish Sector and the Management of Risk
M. Aagsen (DONG)

Heavier Oils: Moving From Unloved Resources to Reserves
S. Jenkins (Nautica)

Government: Denmark
S. Enevoldsen (Energistyrelsen)

Government: Netherlands
P. Jongerius (Ministerie van Economische Zaken)

Government: United Kingdom
'invited' (DTI)

Government: Norway
R. Wiborg (NPD)

PANEL DISCUSSION Chairman - A. Armour

Registration is now open. Visit http://www.aapg.org/Oslo/ for details.

June 2008

Midland Valley

Structure World

Welcome to this months Structure World column from Midland Valley where we will be looking at our soon to be released Move2008 integrated platform for 2DMove, 3DMove and 4DMove while the interpreters tip looks at structural problems in areas of salt tectonics.

***Move2008* - 25 years in the making.**

Next month sees the release of our new product Move2008, which will enable Midland Valley users to launch all of our software - 2DMove, 3DMove and 4DMove - simultaneously from a common desk-top launcher, with 4DMove acting as the scenario analysis hub.

Move2008 is the result of a long program of development in Midland Valley to update and upgrade the market leading 2DMove and 3DMove structural analysis and validation tools. This has involved significant re-engineering of the user interface as well as behind the scenes. The aim throughout has been to allow existing and new users to retain the choice of the classic toolsets, or to combine them to take advantage of new workflows and enhanced functionality.

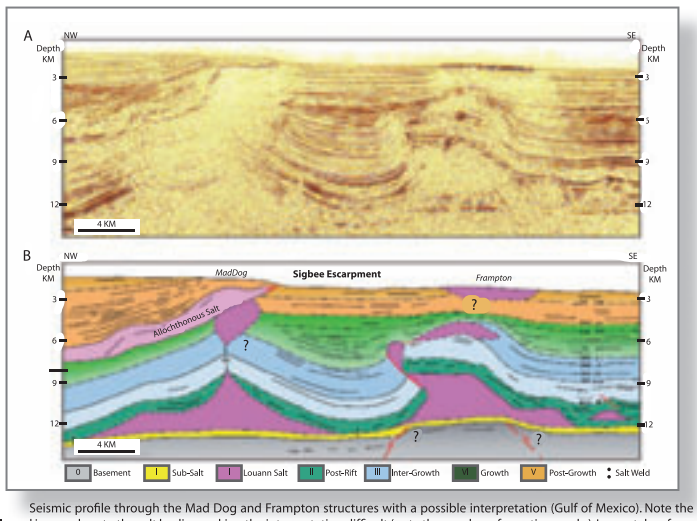
Following the successful previewing of Move2008 at the AAPG in San Antonio, we are preparing to ship pre-release versions to key clients ahead of the first release scheduled for beginning-Q3. Existing users of 2DMove and 3DMove will be upgraded to the Move2008 implementation allowing them to simply add new functionality as "modules" to their existing Midland Valley licences.

Bringing together the 2D, 3D and 4D components of Midland Valley technology into a single hub will provide users with a unique and powerful structural modelling toolkit to build and test their structural models kinematically through geological time. Our scenario-based approach in 4DMove contains modules for geomechanical restoration, fracture modelling and turbidite modelling that will enable users to compare scenarios utilising different geological concepts as well as varying parameters within single models. With the new Move2008 configuration, the multiple scenario functionality in 4DMove can also be combined with the toolsets in both the 2d world (2DMove) and in 3d (3DMove) providing enhanced analysis of structural attributes as well as models to be shared across the desktop workspaces for model building and kinematic validation.

For further information on ***Move2008*** contact help@mve.com

Interpreter Tip: Interpreting in areas of salt tectonics.

When interpreting in areas of salt tectonics, as with all tectonic settings, remember that with the interpretation there must be a viable evolutionary model and the beds, fault blocks and salt bodies must match together at every stage of the evolution. Try to make sketches of the evolution to see whether your interpretation fits a model. There are numerous published models for salt tectonics, use them as guidelines. If you invoke salt movement, the salt must have a place to go, i.e. a growing diapen, and there will be a record in corresponding growth or erosion in the sedimentary record. If you interpret faults in the overburden, they commonly intersect the salt at cusps. Thrust faults or growth faults commonly sole out into the salt, they very rarely cut though the salt layer. The seismic imaging gets blurred close to salt bodies making the interpretation of the salt-sediment boundary very difficult. Due to this, a common interpretation error is that the salt body sizes are over estimated, use the change in sediment thickness as an indicator of volume (area in 2D).



Seismic profile through the Mad Dog and Frampton structures with a possible interpretation (Gulf of Mexico). Note the blurred image close to the salt bodies, making the interpretation difficult (note the number of question marks). Image taken from Grando, 2005 unpublished PhD thesis, RHUL (data Western Geco).

During seismic interpretation it is of high importance to get the salt geometry correct, as the salt has a much higher seismic velocity than that of the surrounding sediment, and can introduce severe artefacts during depth conversion (velocity pull-up).

If you are working in areas of salt tectonics, our products 2DMove and 3DMove have tools specifically designed to help create a better constrained structural model. **Receive the tips by monthly email, contact help@mve. com.**

Midland Valley's Silver Anniversary Technology Meeting

To celebrate our anniversary this year we are holding a Technology Meeting on ***Sept 30th - Oct 1st in Glasgow, UK.***

Supporting events will include:
- September 29: Workshop
  Reducing Structural Uncertainty
- October 2nd, Field Trip
  The highland boundary fault.

To receive the Event Prospectus e-mail Sarah events@mve.com

For further information on our products and services call +44 (0)141 332 2681 or email help@mve.com

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FOUNDATIONupdate

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Warren Jerald Hudson

See **Foundation**, page 50

Needed: Datasets for IBA Contest, Student Study

Industry support is needed to ensure the long-term sustainability of the Imperial Barrel Award Program.

With the anticipated growth in the number of participating universities for 2009, the most critical aspect for the future of the program is the availability of petroleum industry datasets. If the IBA is to be sustainable, relevant and exciting in the long term, new datasets are needed to keep the program fresh.

Contributed datasets are used for educational applications only, and will be used by student teams in universities around the world.

Imperial College London has generously provided the IBA competition datasets to date – AAPG now appeals to the petroleum industry worldwide to step up and support this exciting program with dataset contributions.

"Our vision is to develop a library of regional subsurface datasets that are representative of different basin types worldwide, with variable types of petroleum plays," said IBA technical subcommittee member Howard Johnson.

The key requirements for suitable IBA datasets is that they are regional in scope and, ideally, relatively poorly known in terms of their subsurface geology and hydrocarbon potential.

Datasets from already discovered, major hydrocarbon accumulations are much less suitable than those from under-explored or frontier basins.

The datasets should be technically challenging and geologically interesting. Confidentiality issues need to be resolved at the source.

For data requirements, contact Carol McGowen at cmcgowen@aapg.org.

Data providers will be acknowledged at all Imperial Barrel Award functions in both the Regions and Sections qualifying competitions and at the global finals competition. ❑

R&S

from page 46

presentations demonstrated the strength of the competing schools' academic programs – and the unexpectedly exceptional performances by teams from universities with smaller programs or without traditional petroleum programs demonstrates that IBA is open to all schools willing to compete at the highest levels.

Recognition goes to the faculty advisers for their work in preparing their students for this rigorous competition.

All 34 universities will keep the IBA dataset for use as a curriculum development tool.

Judging Panel Winners

Key to the IBA learning experience is the role of the judging panel. Judges with titles such as senior marketing geoscientist, chief geoscientist, VP-exploration and president came from leading industry companies. Along with scoring each team's presentation, IBA judges challenged, coached, encouraged and provided honest feedback.

Students came away knowing their presentation skills and understanding of geoscience had grown, regardless of their team's competition ranking.

For some, serving as an IBA judge enhanced linkages between industry, universities and AAPG student chapters. For others the opportunity to serve as an IBA judge was a recruitment opportunity.

"I learned more about the students from watching them present and answer questions than I could have learned from a two-hour interview session," said David Miner, manager of technology for Aera Energy LLC in Bakersfield, Calif.

Sponsor Winners

Without our sponsors, IBA would not be possible. To the 37 sponsors worldwide who have generously given both in-kind and financial support for the program, we say THANK YOU! ❑

Thank You

AAPG extends our sincere appreciation to these companies for their financial and technical support

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Texas Geological Society 1929

Also, funding requests approved

Six 'Members' Are Re-Elected

By REBECCA GRIFFIN
AAPG Foundation Manager

The AAPG Foundation's Members of the Corporation re-elected several "regular members" during the group's recent meeting in San Antonio.

Those re-elected to five-year terms that begin on July 1 are:

❒ David G. Campbell, Oklahoma City.
❒ Robert W. Esser, Huntington, N.Y.
❒ M. Ray Thomasson, Denver.
❒ Robert J. Weimer, Golden, Colo.

Trustees also re-elected for three-year terms are:

❒ John J. Amoruso, Houston.
❒ Marlan W. Downey, Dallas.

The next Members of the Corporation meeting is set for June 8, 2009, in Denver.

* * *

In other Foundation news, the Board of Trustees recently approved $289,273 for the following funding requests:

✓ $35,000 for the "Bookout K-12 Initiative" through the Ellison Miles Institute.

✓ $10,423 for the Student Focus Committee for a booth at GSA Houston.

✓ $20,000 for the Youth Educational Activities Committee, to be used for 800 copies of volunteer geologists handbooks.

✓ $50,000 for the University of Texas GIS Tectonic Map Project.

✓ $30,000 (payable over three years) for the University of Texas GeoForce Outreach High School Program.


Campbell


Esser


Thomasson


Weimer


Amoruso


Downey

✓ $48,000 for AAPG Datapages.

✓ $95,000 for the Petroleum Technology Transfer Council.

✓ $850 for Philmont-Boy Scouts.

* * *

Funding for specific educational projects was a big focus for Foundation donors during the past month.

✓ Trustee Associate Chairman **Paul Strunk** and his wife, **Deana**, recently provided a $20,000 contribution to provide a scholarship to a geology graduate student at his alma mater, Kansas State University.

✓ Furthering educational support for future geoscientists, Trustee **William Gipson** has provided funding to be directed toward a University of Texas student declaring his/her major in petroleum geology.

✓ The **East Texas Geological Society** recently provided funding to establish an endowment directed for an AAPG Datapages library subscription at Stephen F. Austin State University.

The university subscription will provide students and faculty access to the entire AAPG Digital Library (over 600,000 pages of maps and geological information) in perpetuity.

Currently 43 colleges and universities receive AAPG Datapages subscriptions through the Foundation program. A one-time gift of $12,500 to the AAPG Foundation will provide a subscription for your alma mater.

For further details, contact the Foundation office at 918-560-2644. ❑

Foundation
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John E. Kilkenny Memorial Grant
Brian P. Pitts

Donald A. and Mary O'Nesky Named Grant
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In memory of J. Glenn Cole

Fred A. and Jean C. Dix Named Grant
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R.E. McAdams Memorial Grant
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In memory of Jim Peterson, Ed Unger and James L. Wilson

K-12 Education Fund
Corpus Christi Geological Library
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Julius H. Johnson
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In memory of Roger D. Steward
Dawn V. Mello
In memory of Roger D. Steward
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Visiting Geoscientist Fund
Chuanbo Shen ❑

AAPG Foundation Awards $206,000 To Graduate Students

The AAPG Foundation Board of Trustees congratulates the following 115 students selected as recipients of AAPG Foundation Grants-in-Aid for 2008:

Australia

University of Adelaide
Katherine Bron, *J. Ben Carsey, Sr. Memorial Grant*

Bulgaria

University of Mining and Geology "St. Ivan Rilski"
Svetlozar Doychinov

Canada

University of Alberta
Natalie Aubet, *Gustavus E. Archie Memorial International Grant*
Yi Zhao

University of Calgary
Brett Miles
Michael Wamsteeker, *Raymond C. Moore Memorial Grant*

University of Ottawa
Kerstin Brauneder
Lilian Navarro, *R. Dana Russell Memorial Grant*
Viktor Terlaky, *L. Austin Weeks Memorial Grant*

University of Saskatchewan
Solange Angulo
Jenni Scott, *Norman H. Foster Memorial Grant*

China

China University of Petroleum, Beijing
Fenghua Tian, *W. David Wiman Memorial Grant*
Kong Xu

China University of Geosciences
Xiaowen Guo, *Marilyn Atwater Memorial Grant*

United Kingdom

Durham University
Jonathan Long, *Horst & Jessie von Bandat Memorial Grant*
Jennifer Martin, *Duncan A. McNaughton Memorial Grant*
Alan Rooney, *Gustavus E. Archie Memorial International Grant*

Imperial College, London
Rachel Kieft, *Jean G. Funkhouser Memorial Grant*

University of Birmingham
Nick Schofield, *Horst & Jessie von Bandat Memorial Grant*

University of Glasgow
Susan Lawther, *Fred A. & Jean C. Dix Named Grant*

University of Manchester
Ann Rowan, *Paul Danheim Nelson Memorial Grant*

University of Oxford
Aisha Al-Suwaidi

United States

Alaska

University of Alaska, Fairbanks
Jacob Mongrain, *John E. Kilkenny Memorial Grant*
Joshua Payne, *Alexander & Geraldine Wanek Named Grant*
Garrett Speeter

Arizona

Northern Arizona University
Douglas Portis, *Arthur A. Meyerhoff Memorial Grant*
Rory San Filippo

University of Arizona
Facundo Fuentes
Joel Saylor
Maria S. Velasco, *Marta S. Weeks Named Grant*

Arkansas

University of Arkansas, Little Rock
Drew Westerman, *Hugh D. Miser Memorial Grant*

California

California State University, Fresno
Christopher Kemp, *Classen Family Named Grant*

Stanford University
Ramil Ahmadov, *Lawrence W. Funkhouser Named Grant*

University of California, Davis
Erik Gulbranson
Lael Vetter, *Nancy Setzer Murray Memorial Grant*

University of Southern California
Rowan Martindale
Scott Mata, *Harold J. Funkhouser Memorial Grant*

Colorado

Colorado School of Mines
Matthew Hoffman, *Kenneth H. Crandall Memorial Grant*
Jeremiah Moody
Amy Moss, *The Institut Francais du Petrole Named Grant*
Prianto Setiawan, *SEAPEX Named Grant*
Henri Silalahi

Colorado State University
Christopher Cassle, *R.E. McAdams Memorial Grant*
Wesley Clary
Ryan Thompson, *Allan & Eleanor Martini Named Grant*

University of Colorado
Brandon Binford, *Richard C. Hasson Memorial Grant*
Eugenia Bribiesca, *Ike Crumbly Minorities in Energy Named Grant*
Jill Haynie, *Suzanne Takken Memorial Grant*

Florida

Florida State University
Corrie Neighbors, *James E. Hooks Memorial Grant*

Georgia

University of Georgia
Mariela Noguera

Idaho

University of Idaho
Heidi Anderson
Sarah de la Rue

Illinois

Northern Illinois University
Camilo Higuera-Diaz

University of Chicago
Mara Brady

Indiana

Ball State University
Kelli McGuire, *Gustavus E. Archie Memorial Grant*

Purdue University
Nicholas Fischietto

Kansas

Kansas State Universtity
Darron DeBoer, *William J. Barrett Family Named Grant*

University of Kansas
Travis Glauser, *Gustavus E. Archie Memorial Grant*
Paul Kenward
Brooke Perini
Brian Platt
David Riese
Joshua Schmerge
Marina Suarez
Jesse Thompson, *Sherman A. Wengerd Memorial Grant*
Lindsay Walters, *Frank E. Kottlowski Memorial Grant*

Wichita State University
Wei Guan, *J. Elmer Thomas Past-Presidents Grant*
Renee Vardy, *Donald F. Towse Memorial Grant*

Kentucky

University of Kentucky
John Allen, *Arthur A. Meyerhoff Memorial Grant*
Brian Cook

Maine

University of Maine
Jeffrey Marsh

Massachusetts

Massachusetts Institute of Technology
Sara Lincoln, *Peter W. Gester Memorial Grant*

Michigan

Western Michigan University
Jennifer Schulz, *Merrill W. Haas Memorial Grant*

Montana

Montana State University
Christina Carr
Ingrid Abrahamson

University of Montana
Kevin Lielke
Paul Skudder

Nebraska

University of Nebraska, Lincoln
Jonathan Allen, *Frederick A. Sutton Memorial Grant*
Jonathan Antia
Matthew Corbett, *Wallace E. Pratt Memorial Grant*
Jesse Koch

New Jersey

Rutgers University
Kelsey Bitting, *Richard W. Beardsley Named Grant*
Andrew Parsekian, *Eastern Section Named Grant*

New Mexico

New Mexico State University
Cody Buller, *Alexander & Geraldine Wanek Named Grant*

University of New Mexico
Stephanie Yurchyk, *Donald A. & Mary O'Nesky Named Grant*

New York

SUNY Binghamton University
Deidre LaClair

Ohio

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Zeynep Oner, *John Teagle Memorial Grant*

University of Cincinnati
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Oklahoma

University of Oklahoma
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Randolph Moses, *David Worthington Family Grant*

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University of Tennessee, Knoxville
Geoffrey Gilleaudeau

Texas

Texas A&M University
Tosin Majekodunmi, *Michel T. Halbouty Memorial Grant*
Rachel Wells, *Michel T. Halbouty Memorial Grant*

Texas Tech University
Jason Lodge, *James W. Milliken Memorial Grant*

University of Texas, Austin
Glen Mackey, *Don R. Boyd Memorial Grant*
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Ryan Phelps, *Robert K. Goldhammer Memorial Grant*
Carla Sanchez
Audrey Sawyer
Derek Sawyer, *Raymond D. Woods Memorial Grant*

Utah

Brigham Young University
Tyson Perkes

Utah State University
Kelly B. Keighley, *Kenneth H. Crandall Memorial Grant*

University of Utah
William Gallin

Virginia

George Mason University
Charles Allen, *Bernold M. "Bruno" Hanson Memorial Environmental Grant*

Washington

Washington State University
Jason Betzner

Wisconsin

University of Wisconsin
Elizabeth Colville

University of Wisconsin, Madison
Timothy Oleson
Ian Orland
Paul Riley
Eric Williams, *Gordon I. Atwater Memorial Grant*

University of Wisconsin, Milwaukee
Lindsey Henry

Wyoming

University of Wyoming
Brady Foreman, *Weimer Family Named Grant*

Alessandro Lanfranchi, 2007 grant recipient

For Information on the Grants-in-Aid Program Contact:
Angela Taylor. AAPG Foundation
Phone: 1.888.945.2274 ext. 664 · Email: ataylor@aapg.org

WWWupdate

Bookstore Gets Cyber Makeover

By GERALD BUCKLEY
AAPG Marketing Manager

The AAPG online bookstore has seen a significant upgrade as of early May.

We've heard people say over and over again, "Why can't you be more like Amazon?" and it's a great point. We took that feedback and committed to delivering on that request.

What visitors will see now is a subtle bit of difference here and there – but on the whole it really adds up.

The biggest difference will be seen in the finalé. The e-mailed receipt or factura is now clear, concise and itemized. Turns out that's a really big deal.

Some other things shoppers and buyers will enjoy seeing:

✓ Shipping tracking – Your purchases will now be easily tracked from the AAPG shipping dock to your front door.

✓ Intuitive searching – It's now much easier to find the products you're interested in.

✓ Related products – Sometimes it's not so easy to find related products. We've tried to address that in an Amazon-like way.

✓ Purchase history – Your purchase history is stored for your convenience to review at any time.

✓ Call now – Perhaps the cleverest of the improvements comes in the form of an "escape hatch." In the event you find yourself stuck online with no apparent way to get things righted we offer a convenient "Call Now" button (during AAPG headquarters' operating hours). This will connect a friendly AAPG staffer to you by telephone (at our cost, not yours) and will help facilitate your order.

Many months the AAPG sells as many books, maps and CDs via the Web as it does via all other methods combined (conferences, workshops and the catalog). It makes good sense to invest in strategically important areas like these. The Web is "always on," the convenience of the Web as a sales conduit is no longer in question and the technologies have become so good and reliable it made sense to do this now.

Some things you may not be aware you are able to purchase at the AAPG online Bookstore:

✓ DVDs of the vintage AAPG Slide Audio Tape series. Oldies, but goodies.

✓ Online training. Yes, we offer this through the online bookstore!

Sneak Peek

Some future improvements to look for include:

✓ Downloadable files – We'll be offering downloadable files (GIS, maps, videos, etc), a feature offered only through the online bookstore.

✓ "Saved" shopping carts – Because shoppers, for whatever reason, sometimes have a need to put a planned purchase on hold.

✓ Pay per view – Because sometimes a chapter is not compelling enough to buy the whole book. We'll be linking our tables of contents to an article-by-article checkout option.

For more information contact me at 1-918-560-9430, or gbuckley@aapg.org.

One More Thing

When you first enter this new area you will be prompted to update your profile information.

In the crossover to our new database management system birthdates and other important details required some special massaging. Yours may not be quite right.

Please take a moment to review all details in your personal information to ensure we have your data correct.

Thanks in advance for the help. ❑

Rick Turner Wins Levorsen Award

Rick Turner has been named the winner of the A.I. Levorsen Award for the best oral paper at this year's Southwest Section annual meeting.

Turner, of Tyler, Texas, won the award for his paper "The Uncertainty of Carbon Dioxide – Climate Drive or Climate Rider."

He'll receive his award at the next Southwest Section meeting, set April 26-29 in Midland, Texas. ❑

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WASHINGTONwatch

Nagging Biofuel Issues Linger

By DAVID CURTISS
GEO-DC Director

A hard look at biofuels:

The spring of 2008 will not be remembered fondly in Haiti. The small, troubled Caribbean island country is again experiencing wrenching civil unrest.

This time the cause is soaring food prices and widespread shortages. In a country where over 80 percent of the population lives in poverty, according to the World Bank, gnawing hunger is a way of life. One widely reported antidote on sale in Haitian markets is the dirt cookie – sun-baked patties of dirt, shortening and salt. These treats offer little nutritional value, but dull the pangs of hunger.

How did we get here?

* * *

If you read the U.S. press, much is made of the role of increased biofuels production siphoning maize away from food production and into ethanol plants. In fact, during a recent interview on National Public Radio, World Bank president Robert Zoellick called biofuels a "significant contributor" to global food price escalation.

Biofuels are not the entire cause, of course. Oxford Analytica, an international consulting firm, identifies several factors driving food prices higher including:

✓ High oil and gas prices make farming more expensive, from fueling tractors to purchasing fertilizer.

✓ Weather extremes, both droughts and flooding, result in variable crop yields.

Curtiss

But for all the excitement about biofuels several nagging issues remain – starting with whether it takes more money to produce ethanol than the fuel actually delivers.

✓ Speculation in the commodity markets creates upward price pressure.

✓ Increased meat and dairy consumption by rapidly developing economies, such as China, has boosted demand for feed grain.

✓ Government policies and subsidies divert crops to biofuel production.

One such U.S. policy is the Energy Independence and Security Act of 2007, discussed in our March 2008 column. The law includes a biofuels provision ramping up annual production to 36 billion gallons by 2022.

Biofuels are politically appealing because the farmer is a potent political symbol. In the United States, agriculture policy is defined less by partisanship than by geography. Do you represent a farm state or not?

And the United States is not unique; the European Union routinely wages fierce battles over agriculture policy, with each nation jealously guarding its farmers and their subsidies.

This inherent political support for farming combined with a fuzzy notion of energy independence using a home-grown renewable resource, such as maize, yields a political bonanza that few policy makers can resist.

It also has stimulated the entrepreneurial spirit. *The New York Times* (April 27, 2008) reports that later this year the E-Fuel Corporation, a Silicon Valley start-up, will begin shipping the "MicroFueler," an ethanol still for your home. This is not your grandpappy's still hidden in the woods. Rather, it is a stackable washer-dryer sized unit that produces ethanol from sugar, water and electricity.

Why bother with a gas station?

* * *

But for all the excitement about biofuels several nagging issues remain – starting with whether it takes more energy to produce ethanol than the fuel actually delivers.

This was true in the 1970s. But according to the U.S. National Renewable Energy Laboratory, today's improved farming practices and ethanol production advancements have reduced those energy costs below breakeven. In fact, the lab reports "a 30 percent gain in fuel energy over the fossil energy inputs."

But the volume of water required for ethanol production is a concern. This water is used both in the distillation process and for cooling – and the Minnesota-based Institute for Agriculture and Trade Policy fears that the dramatic expansion of ethanol facilities, particularly in the American Midwest, could exacerbate existing water supply problems and ultimately limit ethanol production.

Finally, is it a wise choice to burn food as transportation fuel? It is a choice with potentially grim consequences. Do the benefits outweigh the costs?

The National Petroleum Council's 2007 study, "Facing the Hard Truths About Energy," recommends increased biofuels production as a diversification strategy for the global energy mix. Even so, under business-as-usual conditions, biomass will only deliver 5 to 10 percent of global energy supply by 2030.

The report highlights the importance of moving beyond maize-based biofuel production to second generation – or advanced – biofuels using cellulosic material. Switchgrass, a hardy prairie grass that can grow on marginally productive land and is drought resistant, is often mentioned as a source of cellulosic material. However, the technology to commercially produce

See **Biofuels**, page 56

The best way to learn it, is to live it.

Choose from over 50 exciting field seminars and short courses all designed with the goal of helping you explore and better understand your industry. For more on any field seminars and short courses, call 918-560-2650 or visit www.aapg.org/education.

FIELD SEMINARS

Lewis & Clark Geotour: Marias River To Gates Of The Mountains, Montana
September 9-14, 2008 / Begins and ends in Great Falls, MT
William B. Hansen, Jireh Consulting Services, Great Falls, MT
http://www.aapg.org/education/fieldseminars/details.cfm?ID=19

Modern Terrigenous Clastic Depositional Environments
September 25-October 2, 2008 / Begins in Columbia and ends in Charleston, SC
Walter J. Sexton, Athena Technologies, Inc., Columbia, SC
http://www.aapg.org/education/fieldseminars/details.cfm?ID=60

SHORT COURSES

Fall Education Conference On Structural Geology
September 15-19, 2008 / Houston, TX
Eight top-notch courses around the theme of Structural Geology, with 10 renowned instructors: John Lorenz, Ronald Nelson, Martin Traugott, Mark Zoback, Russell Davies, Ken McClay, Vivek Chitale, Paul Elliott, Fred Hilterman, and Mark Rowan.
http://www.aapg.org/education/fec.cfm

Interpretation Of Old DST's For Bypassed Pay Potential
September 25-27, 2008 / Denver, CO, following the SPE Annual Meeting
Hugh W. Reid, Hugh W. Reid & Associates, Calgary, AB, Canada
http://www.aapg.org/education/shortcourse/details.cfm?ID=111

LAST CHANCE - DON'T MISS THESE SUMMER OPPORTUNITIES

Computer Mapping For Petroleum Exploration
July 9-10, 2008 / Dallas, TX
Hannes Leetaru, Illinois State Geological Survey, Champaign, IL
http://www.aapg.org/education/shortcourse/details.cfm?ID=48

Seismic Interpretation Of Compressive Structures
July 19-25, 2008 / Begins and ends in Calgary, AB, Canada
John Shaw, Harvard University, Cambridge, MA; Dr. Frank Bilotti, Chevron, Houston, TX
http://www.aapg.org/education/fieldseminars/details.cfm?ID=112

Basic Well Log Analysis
July 22-25, 2008 / Denver, CO
George Asquith, Texas Tech University, Lubbock, TX; Daniel Krygowski, The Discovery Group, Denver, CO
http://www.aapg.org/education/shortcourse/details.cfm?ID=45

Application Of Structural Geology In Prospecting In Thrusted And Extensional Terrains
August 4-8, 2008 / Jackson Hole, WY
Charles Kluth, Consultant, Denver, CO; Ronald Nelson, Consultant, Cat Spring, TX
http://www.aapg.org/education/shortcourse/details.cfm?ID=44

More Science Than You Can Shake A Pick At.

American Association of Petroleum Geologists

Commentary

Office Puts 'GEO' in DC

By PATRICK J.F. GRATTON and DAN L. SMITH

Bob Gunn, 1978-79 AAPG president and 1997 Sidney Powers medalist, once said, "Most people think in three-dimensional terms, but the petroleum explorationist must think in as many as six. The fourth dimension is time, the fifth is money and the sixth is politics."

It is ironic that time, money and politics all played significant roles in establishing AAPG's Geoscience and Energy Office in Washington, D.C. (GEO-DC).

Gunn was the first president to bring Association issues to Washington on a semi-permanent basis by engaging paid professionals (AAPG's earlier activities were confined largely to members' oral and written testimony before congressional committees and federal agencies).

Over the quarter-century following Gunn's initiative, the Division of Professional Affairs (DPA) and its Governmental Affairs Committee (GAC) became AAPG's home for interaction with U.S. federal and state lawmakers and regulators.

GAC developed a large number of governmental-related policy papers (now called "statements"), which subsequently were approved by senior leadership of DPA and AAPG's Executive Committee (EC). Over time these statements and new ones are reviewed and re-submitted for leadership approval.

"Statements" were made available to members, industry and government officials through Web sites, publications and occasional visits to lawmakers.

Missing from the delivery system was a fulltime AAPG staffer based in Washington. Several ECs recognized the need, but had difficulty finding the money to open a GEO-DC office.

However, on July 1, 2004, a new EC passed a resolution to investigate opening a permanent office in Washington. Still, it took time and it wasn't until June 2005 that GEO-DC was approved (almost at the end of that EC term). Finding the money was easier with the onset of higher oil and gas prices!

DPA joined AAPG proper in financing GEO-DC. The division's contributions effectively reduce the net AAPG cost to less than 2 percent of the Association's current budget.

Numerous individuals (too many to name!) worked to make GEO-DC functional. The original business plan called for a Governance Board (GOVBD) to provide member oversight and involvement in the planning and execution of the office. GAC works closely with GOVBD and hosts a subcommittee focused on member visits known as the Washington Advocacy Group (WAG).

Gratton

Smith

* * *

Recently, the EC approved extending the life of the GEO-DC office to June 30, 2011, contingent on annual review of impact and clearly defined metrics.

The following 12-point list was forwarded to the EC by our Governance Board in recommending continuation of the Washington office:

During the startup period from July 2005 to late April 2008, GEO-DC has:

✓ Been critically important to AAPG's growing recognition in Washington (senators, representatives, agency and department managers and their staffs).

In total, the Association is in contact with over 200 elected and appointed officials and other professionals working in legislative or regulatory areas affecting the daily lives of AAPG members domestically and, increasingly internationally, too. Many of these professionals call GEO-DC to access AAPG expertise and recognize that the Association is committed to bring science and technology to public policy formation.

✓ Been critically important to forming, organizing and conducting the Multidisciplinary Petroleum Reserves Conference (with SPE, SPEE, WPC, UN) in June 2007, which brought reserves data providers, users and regulators together.

Recent SEC initiatives looking at reclassification and determination of oil

continued on next page

Biofuels

from page 54

ethanol from such material is still in development.

Government policy is moving in this direction. The Energy Independence and Security Act of 2007 requires that nearly 60 percent of the 36 billion gallons mandated by 2022 be advanced biofuels.

* * *

The promise of advanced technologies and a strong political constituency ensure biofuels will remain part of the future global energy mix. But the consequences of our biofuels policy choices are clearly having global impact today.

High food prices, in part due to aggressive ethanol development, have given the developed world a mild case of indigestion.

In the less developed world, these same choices threaten unintentional tragedy. ❑

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

continued from previous page

and gas reserves were precipitated as a result.

✓ Critically assisted in preparation of congressional testimony and responses to agency requests for input by senior AAPG leaders.

✓ Been critically important to AAPG's participation in Congressional Visit Days (CVD), where the Association was represented by members from the GEO-DC GOVBD and WAG.

✓ Been critically important to AAPG's acquisition of the management of PTTC.

✓ Been essential in getting hydrocarbon systems science included in the America COMPETES Act of 2007.

✓ Been important as a founding member of the Consumer Energy Alliance (CEA) and catalyzing several other alliance relationships, many informal, wherein AAPG found opportunities to leverage our talent and members toward common goals.

✓ Been important as a knowledgeable resource for fine tuning AAPG statements.

✓ Given AAPG opportunities to improve our capabilities and increase our influence in other politically sensitive forums (National Conference of State Legislators, AASG, IPAA, etc.)

✓ Been recognized by industry for providing meaningful assistance on a wide array of issues affecting the petroleum industry.

✓ Been recognized by numerous organizations for AAPG's efforts and leadership (e.g., National Petroleum Council, Shell, Senate Energy and Natural Resources, AASG).

✓ Received substantial budgetary support from DPA along with considerable off-budget contributions of time and absorbed expenses by DPA and other AAPG members.

* * *

The thrust of GEO-DC is to gain understanding and support from the U.S. government for AAPG members. This kind of support helped lead to the commercialization of coal bed methane, tight gas sand production and shale gas exploitation to name just a few. Help also went to U.S. universities in education of geoscience and engineering students.

In all these references, while the initial focus was domestic, the benefits were global.

We should not just standby and do nothing when our very livelihood as geoscientists is so affected by policies that are often based on no science or incomplete science. Policy makers at all levels need to be better informed on the realities of energy and other geoscience issues that make a difference to us and to people all over the world.

Those who have attended the Congressional Visits Day know there is a lot of misunderstanding about energy issues. Accordingly, we must continue to bring good science and technology to those who control much of our future.

If any of you (not just DPA members) are interested in contributing your time and effort as a member in GEO-DC programs please contact us at pjfginc@aol.com (Pat) or dsmith@soginc.net (Dan). We will look forward to working with you or referring you to Carl Smith, chair of GAC (wvnavy@gmail.com), or Deborah Sacrey, chair of WAG (dsacrey@auburnenergy.com)

If you are interested in financial support to GEO-DC, please use your dues notice and mark the box and show amount of your voluntary contribution. You will join early contributors who provided funds to get GEO-DC going.

(These contributions are not deductible for federal income tax purposes and are limited to U.S. members.)

Finally, GEO-DC would not be successful without the excellent work of founding director Don Juckett and current director David Curtiss. Many thanks to them!

Our motto: "Bringing geoscience and technology to public policy formation." We'll leave influence style policy development to others! ❑

(Editor's note: Pat Gratton is chair and Dan Smith is vice chair of the GEO-DC Governance Board.)

MEMBERSHIP&certification

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

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

Information included here comes from the AAPG membership department.

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

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

For Active Membership

Colorado
Fuller, June Leaver, J-W Operating Co., Centennial (C.C. Clark, J.S. Leaver, S. Norris); **Klinger, Melissa M.**, Cimarex Energy, Denver (D. Spancers, C.A. Hinson, D.N. Witter); **Krupp, Dawn**, EXCO Resources, Denver (W.R. Reinhart, R.A. Foster, G. Parker); **Stiles, Paul Richard**, Landmark Graphics, Littleton (R.L. Mathis, G. Guyer, M.M. Ghazizadeh)

Indiana
Brassell, Simon Christopher, Indiana University, Bloomington (S.W. Tinker, K.E. Peters, M. Mastalerz); **Suttner, Lee J.**, Indiana University, Bloomington (reinstate)

Kansas
Gonzalez, Luis, University of Kansas, Lawrence (R.H. Goldstein, E.K. Franseen, P. Enos)

Louisiana
Johnson, Michael Alan, self-employed, New Orleans (S. Wainwright, R. Norvell, J. Zotkiewicz)

New York
Jusczuk, Steven John, EMSL Analytical, New York (W. Thomas, J. Drahovzal, N. Donovan)

Ohio
Brown, Eric Wesley, Knox Energy, New Albany (A. Jones, M.A. Neese, N.L. Venteris)

Oklahoma
Davis, Robert James, Schlumberger, Oklahoma City (G. Gillis, R. Slatt, R. Lindblom); **Olschesky, Karyn Sue**, Chesapeake Energy, Oklahoma City (R.H. Campbell, S.A. Ladner, J.V. Hogan Jr.); **Simsek, Zinar**, consultant, Bristow (B. Tapp, R. Scott, E. Wilson)

Texas
Barker, Doss, Schlumberger, Houston (R. Gudramovics, K.E. Nemeth, H.L. Buscher); **Comegys, Scott Glassell**, Nexen Petroleum U.S.A., Dallas (R.B. Laybourne, J.B. Wagner, J.S. Comegys); **Davis, Gary Wayne**, Haas Petroleum Engineering, Dallas (M. Norville, R.G. Green, R.W. Haas); **DeSantis, John E.**, Chevron, Houston (C. Butler, S. Sartain, S. Beaty); **Dong, Wenjie**, ExxonMobil Exploration, Houston (S. Utskot, J. Markello, R. Sarg); **Fisher, Russell Andrew**, TETRA Technologies, Spring (B. Stone, P. Gucwa, K.C. Harden); **Garrigan, Michael L.**, Entact LLC, Flower Mound (W.L. Manger, P.R. Shelby, W.R. Rice); **Gentry, Matthew David**, Antares Energy, Dallas (J. Aubrey, D. Sacrey, S. Bell); **Gross, Peter Ronald**, Energy America Geothermal, Houston (L.L. Sarle, R.J. Erdlac Jr., M. Donaldson); **Kemal, Arif**, Osprey Petroleum, Houston (D.W. Hughes, R. Rouxel, J. Burton); **Kjerfve, Bjorn**, Texas A&M University, Houston (L.T. Billingsley, W.R. Green, W.M. Ahr); **Leonard, Mark S.**, retired, Houston (S. Tinker, B. Delph, D. Worrall); **Malaver, Cristian Hernando**, El Paso Corp., Houston (T. Walker, T. Davis, N. Hurley); **Mohamed, Magdy Mohamed**, BP America, Houston (S. Abdelmoaty, P. Belvedere, D. Creighton); **Pietraszek-Mattner, Sarah R.**, ExxonMobil, Houston (J. Gournay, G. Grabowski, T.W. Jones); **Schafer, Kirk Wyatt**, ExxonMobil Exploration, Spring (J. Gournay, G.J. Grabowski, C.W. Kiven); **Schelble, Rachel**, ExxonMobil, Houston (W.S. Clendenen, R.J. Pottorf, H. Tseng); **Schmidt, Thomas H.**, DeGolyer & MacNaughton, Dallas (P.L. Neat, H. Peace, D.T. MacKenzie III); **Stewart, Jonathan**, ExxonMobil Upstream Research, Houston (K.M. Campion, A. Sprague, J. Van Wagoner); **Uschner-Arroyo, Natalie**, Schlumberger, Houston (K.S. Glaser, S. Levine, K. Nemeth); **Utech, Nancy McEachron**, Shell Global Solutions, Houston (J. Burgess, M. Deshowitz, C. Shipp); **Wasson, Matthew Scott**, Chevron, Midland (J. Gillespie, S. Ingram, R. Nail)

West Virginia
Ramsey, Heather Nichole, Chesapeake Appalachia, Charleston (E. Rothman, K. Haddad, B.J. Carney)

Wyoming
Elser, Alfred M., Department of the Interior, Casper (K. Osvald, F. Crockett, D. Stilwell)

Australia
Krapf, Carmen B.E., University of Adelaide, Adelaide (J. Kaldi, S.C. Lang, R.B.

continued on next page

continued from previous page

Ainsworth); **Saghafi, Abouna**, CSIRO Energy Technology Australia, Newcastle (M.M. Faiz, H. Volk, N.J. Russell)

Austria
Finsterwalder, Rudolf, OMV, Vienna (V. Dimo, H. Granser, N. Ahmad)

Canada
Du Toit, Charl, Nexen Petroleum International, Calgary (D.J. Mitchell, K. Root, M. Hewitt); **Eddy, Mike A.**, Total Gas Detection, Calgary, (R.T. Dick, M. Wells, V.E. Hill); **Horvath, Ernest Csaba**, Talilsman Energy, Calgary (B. Faraj, C. J. Lederhouse, S. R. Seifert); **Medwid, Mike**, Response Energy, Calgary, (B.P. Mazurkewich, L.A. Brazzoni, J. Elford); **Newrick, Rachel T.**, Nexen, Calgary, (D.A. Leckie, M. Simpson, R.J. Galant); **Zonneveld, John-Paul**, University of Alberta, Edmonton (T.F. Moslow, D.A. Leckie, J.D. Meloche)

Denmark
Ahmed, Mukarram, Schlumberger, Copenhagen (R. Mohanty, G.G. Shanor, C. Otor)

France
Ogunyemi, Taofeek Ademola, Schlumberger Oilfield, Paris (R.O. Olugbemiro, P.J. Montaggioni, E.M. Sanguinetti)

Indonesia
Ilona, Shanty, ConocoPhillips, Jakarta (W.L. Fisher, C.A. Caughey, S. Danudjaja)

Kuwait
Al-Qallaf, Hanadi B., Kuwait Oil Co., Ahmadi (C.A. Caughey, J.W. Tucker, S.W. Tinker); **Bou-Rabee, Firyal Nader**, Kuwait University, Safat (A. Alsharhan, M. Talwani, C. Kendall)

Malaysia
Abd Kadir, Askury, Universiti Teknologi Petronas, Tronon, Perak (B.J. Pierson, K. Rashidah, H. Darman); **Liau, Boon Leong**, Murphy Oil Sarawak, Kuala Lumpur (A. Firth, M.R. Lasmen, M.Y. Abdullah)

Netherlands
Trabucho Alexandre, Joao, University of Utrecht, Utrecht (C.W.M. Van Oosterhout, H. Doust, P. Turner)

Norway
Badali, Marcello, StatoilHydro ASA, Oslo (M. Ramm, E.A. Mancini, F.M. Liestøl); **Thurmond, Allison Kennedy**, StatoilHydro, Bones (R.J. Stern, O.J. Martinsen, J. Bhattacharya)

Oman
AlAdawi, Rashid AlMur, Oxy, Muscat (M.C. Boehm, D.R. Enns, R.J. Bottinga)

Certification

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

Petroleum Geologist

Montana
Hughes, Gary C., Athena Energy, Billings (R.P. Diedrich, L.B. Kellison, R.G. Dickinson)

Oklahoma
Godsey, David A., Chesapeake Energy, Oklahoma City (reinstatement)

Texas
Jostes, John Harriss, Hunt Petroleum Corp., Houston (T. Podrebarac, G. Barriault, W. Spies)

Canada
Olutusin, David Bamidele, Belloy Petroleum Consulting Ltd., Calgary (Society of Independent Professional Earth Scientists)

Coal Geologist

Indiana
Meighen, Penny L., Marshall Miller and Associates, Evansville (J.C. Hower, C.B. Rexroad, M. Mastalerz)

Poland
Zywiecki, Michal M., OG Petroleum Consulting, Warsaw (P.R. Rose, M.P. Lewis, M.K. Wojcik)

Qatar
Kennedy, Stephen, Rasgas Company, Doha (D.D. Puls, M. Fernandez, J.A. Moser)

Scotland
Kender, Sev, Chevron, Aberdeen (T. Dignes, R. Witmer, H. Howe)

Spain
Soto, Juan J., Granada University, Granada (A.W. Bally, G. Tari, J.F. Flinch)

Sudan
Ibrahim, Khalid Nasr Mohamed, Petrodar Operating, Khartoum (M.N. Bushara, S.T. Abdelbagi, I.A. Mohamed)

Switzerland
Leckenby, Robert James, Addax Petroleum Services, Geneva (C. Lucas, L. Lonergan, W. Olivier) ❑

READER'Sforum

Baby Elephant Hunting

Louise Durham's article, "New Ideas Keep GoM a Prime Target," (May EXPLORER) has merit. In the political world of anti-socialism, or however one wishes to address it, left, progressive, etc., the spin is, "Ideas Have Consequences," except that is not a spin.

Blickwede's rendition of the Gulf of Mexico's untapped potential is on the right course, but what about us non-offshore players?

In the many years I've been exploring, my head is full of new ideas and places to look from skimpy geological information that is available. There is nothing wrong in looking for the one million and upwards barrels of oil fields at 5,000 feet. The trouble with my head is that it can't come up with the money to begin from the start of exploration to define the areas.

Evidently neither can anyone else. These areas haven't seen any activity in double-digit years. Anyone with only a handful of risk dollars want to go hunting for baby elephants?

Toby Elster
Wichita, Kan.

New Age Dawning

Regarding Gene Shinn's commentary in the May EXPLORER on the conflict between geological studies and those who believe that Atlantis lies beneath the Caribbean Sea ("Some Will Learn, Others 'Believe'"):

Stay on them, Gene! One day the New Age thinkers will start thinking.

Dudley South
Pembroke Pines, Fla.

Harrison Schmitt

On behalf of the AAPG Astrogeology Committee, thanks for your article "Schmitt Still Reaching for the Stars" in the May EXPLORER. I am happy to report that our session, "Return to the Moon: Research, Resources and Rewards," was very well attended at the AAPG convention in San Antonio.

By the way, Jack Schmitt will be speaking again at the 2008 International AAPG Conference and Exhibition in Cape Town, South Africa, and the AAPG Astrogeology Committee will be sponsoring two oral sessions there, "Sub-continental Scale Layered Intrusives and Lunar Mare Structures" and "Snowball Earth and Planetary Climate Change Through Time," as well as a field trip to the Bushveld Complex.

More information on these items and other activities can be found on our committee's Web site at http://www.aapg.org/committees/astrogeology/index.cfm.

Again, thanks for the press!

William A. Ambrose
Austin, Texas

(Editor's note: Ambrose is co-chair of the AAPG Astrogeology Committee.

Also, Ambrose was perhaps too kind to mention that the article on Harrison "Jack" Schmitt had a mistake.

Schmitt's Apollo 17 mission to the moon was in 1972, and although he was the last geologist to walk on the planet, mission commander Eugene Cernan was actually the last person to climb the ladder off the moon's surface.

We apologize for the error.) ❑

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

INmemory

Charles C. Bishop (EM '51)
Junction, Calif.

J. Glenn Cole, 78
Sapulpa, Okla., March 21, 2008

Michael L. Crouch, 62
Wichita, Kan., Nov. 20, 2007

Ronald G. Grant, 55
Midland, Texas, March 17, 2008

George Gryc, 88
Sunnyvale, Calif., April 27, 2008

* Melvin J. Hill, 88
Arvada, Colo., Dec. 17, 2007

Charles E. Kirschner, 87
Union, Wash., Nov. 7, 2007

William C. Lake, 79
Leavenworth, Kan.

Earl L. Mills, 82
Lafayette, La., March 22, 2008

Henry E. Reif Jr., 56
Lafayette, La., March 19, 2008

Cecil P. Richardson, 83
Redding, Calif., Oct. 22, 2006

Barry W. Roberts, 58
Edmond, Okla., Sept. 1, 2007

William W. Sharp Jr., 83
Dallas, July 11, 2007

Glen C. Thrasher, 93
Cheverly, Md., March 23, 2008

Lewis L. Tuck, 89
Littleton, Colo, April 13, 2008

(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. Asterisk denotes AAPG Honorary Member.)

CLASSIFIEDads

POSITION AVAILABLE

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The Petroleum Technology program at the University of Pittsburgh at Bradford announces a one-year, non-tenure-stream position to begin August 2008. The specialization areas are Petroleum Engineering/ Petroleum Geology. A Ph.D. or M.S. is preferred but candidates with a B.S. degree and extensive experience in the field of petroleum technology will be considered. The candidate will be asked to teach Petroleum Geology and Workshop Practices (in petroleum technology), Geophysical Prospecting, and Engineering Geology, together with courses in the candidate's areas of specialty.

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A PhD is required for appointment. An application should note the title of the specific advertisement you are responding to and include a cover letter, CV, list of publications, list of references, statements of teaching and/or research interests, sent to: Randal Okumura, Office of the Dean / Jackson School of Geosciences, The University of Texas at Austin / PO Box B, University Station / Austin, TX 78713 or jobs@jsg.utexas.edu.

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DIRECTOR'Scorner

Campaign Moves to 'Public Phase'

By RICK FRITZ

Fritz

Roll out the banners and start your engines: The public phase of the AAPG Foundation's fundraising program is here!

A little over three years ago a group of dedicated volunteers led by the AAPG Foundation Trustees began planning a major financial campaign (see related story on page 10). The plan was driven by "*need*," as the Foundation was receiving more viable requests than it had funds to support.

At the same time the petroleum profession was expanding along with the public needs associated with energy and geoscience education.

* * *

For the past two and one-half years the AAPG Foundation's fundraising campaign has been in the initial or "silent phase" of raising funds for the many projects supported by the Foundation and also for emerging opportunities that deserved attention.

Our original goal was to more than double the Foundation's portfolio of $16 million. The rule in fundraising is you should try to raise at least 60 percent during the "silent phase" of the campaign. It is "silent" in that leaders with a history and interest in making major gifts are personally approached by a few members and asked to provide lead gifts for the campaign.

Our challenge is defined, and Association leaders have taken the first steps in the Foundation's fundraising program; we are asking you to join us.

Leadership cannot be understated in a financial campaign. It was the Foundation Trustees, the Foundation Financial Committee, members of the Association's Executive Committee and staff that led the way by personally pledging major gifts to the campaign.

Thanks to the lead gift of $10 million from L. Austin and Marta Weeks and the generosity of 70 AAPG members we have now raised nearly $23 million!

Part of that total is a key gift of $9.4 million announced at our recent annual meeting in San Antonio. This last gift of the "silent phase" was provided by longtime AAPG member Boone Pickens to establish and build a digital geology fund in the Foundation.

Monies from this fund will be used to accelerate the development of AAPG's digital GIS program through a unique consortium between AAPG and Oklahoma State University (see related story, page 8).

* * *

The old coffee commercial says, "The best part of waking up is Folger's in your cup." I hope that's not really the best part!

The best part of the Foundation Financial Campaign is meeting people. I knew L. Austin Weeks only for a few years, but his generosity and that of his family is incredible. Marta Weeks has been a leader in the campaign and her vision of giving represents the soul of the Foundation.

Building relationships is the key component of any financial campaign. Following the Weeks' gift, the campaign committee traveled around the country talking to potential donors.

For example, Jack Threet, Marlan Downey and Bill Gipson talked to John Bookout about his interest in K-12 education. As a result, a fund has been established to "Teach-the-Teachers" about geoscience and energy education (See May EXPLORER).

And it has been a pleasure for me to work with Boone Pickens. His gift will support the development of digital products that will be used around the globe for education and research.

We have planted many seeds for future needs of the Foundation program. Based on the generosity of a few members the Foundation Trustees and Financial Committee felt very comfortable in setting the campaign goal at $35 million.

* * *

Now its time for the "public phase" of the campaign, where all members will be invited to support the Foundation's program beyond regular giving.

Keep in mind, a large part of the Foundation's funds are endowments that last well into the future.

The primary emphasis of the initiative's public phase will be to educate members about the many programs of the AAPG Foundation. This will include town hall meetings, notices in the AAPG EXPLORER and BULLETIN, special receptions, correspondence and Web-based information. During the remainder of the year each issue of the EXPLORER will highlight one program supported by the campaign.

"Meeting Challenges, Assuring Success" is the campaign's motto. AAPG's leaders have taken the first steps. We are asking you to join us.

Your personal invitation will arrive soon.

'Viewscapes' a growing issue

Ugly Is In the Eye of the Beholder

By CHARLES G. 'Chip' GROAT
DEG President

During the portion of my time in Louisiana that I administered the state's coastal zone management program I attended a coastal zone managers meeting in Florida.

At the conclusion of an afternoon business session a group of us walked down to the beach to look out across the Gulf of Mexico. In an attempt to be humorous, I made the comment that something just didn't seem right with the view.

When asked what I meant, I replied that there weren't any oil and gas platforms in sight.

This was a time when most coastal states were vehemently resisting efforts to lease offshore areas for oil and gas development, so none of my colleagues found my remark funny or rational.

Fast forward to today and I can imagine a West Texas rancher making a similar comment as he looks across a windmill-free landscape somewhere in Nebraska or Michigan. While the importance of viewscapes as environmental factors in decision-making is a debatable point, the landscape effects of energy infrastructure is a growing issue – and it isn't limited to oil and gas.

* * *

Some who question claims that solar power is the next comprehensive provider of energy are fond of showing maps depicting how many state-equivalent land areas would be covered by solar panels if solar were to replace conventional electricity generation facilities.

The landscape effects of energy infrastructure is a growing issue – and it isn't limited to oil and gas.

Groat

Similarly, those skeptical about corn-based ethanol replacing petroleum-based gasoline envision a landscape planted in corn stretching from sea to shining sea.

It is unlikely that any state's congressional delegation or regulatory process would let these things happen, but it does point out that a modern economy and lifestyle in a country that is heading toward a population of 400 million people within a few decades, is going to see more land affected by energy production infrastructure growth to go along with the spread of subdivisions, strip malls and golf courses.

Within the oil and gas sector we are seeing increased densities of wells in existing fields as infill drilling is employed to maximize recovery from known resources. Unconventional sources of natural gas – notably coalbed methane and shale reservoirs – require denser well spacings than those in many conventional fields. Then there are service roads, compressor stations and pipelines that are part of the production and transport process.

As the quest for unconventional oil and gas moves into areas not accustomed to drill rigs and production pads – especially those areas now occupied by affluent former urbanites who have retreated to the country – opposition to landscape change will grow.

Whether it is oil and gas wells, windmills, solar panels, fields of switchgrass, coal mines, in situ uranium well fields or oil shale production facilities, landscape and viewscape effects of energy development are inevitable.

Our education process tends to leave students with the impression that the landscape effects of food production through farming are "natural" and acceptable, whereas energy and mineral extraction are undesirable and avoidable activities.

This is an area where those interested in the environmental – including quality-of-view, effects of hydrocarbon, wind, solar, biomass and other energy production activities and infrastructure – should band together to influence the education of our children and the general public, not only about the importance of energy production, but that it is as "natural" a part of our landscape as farms, subdivisions and strip malls.

* * *

While many who value the rural image of our nation may not welcome the spread of any of these across the countryside, at a minimum we should work to ensure that the energy production facilities component of the spread is not singled out as unnecessary, and therefore avoidable.

AAPG, through its education program and DEG, should explore alliances and creative approaches to accomplishing greater acceptance of the energy infrastructure necessary to support the economy and lifestyle few Americans appear willing to curtail. ❑

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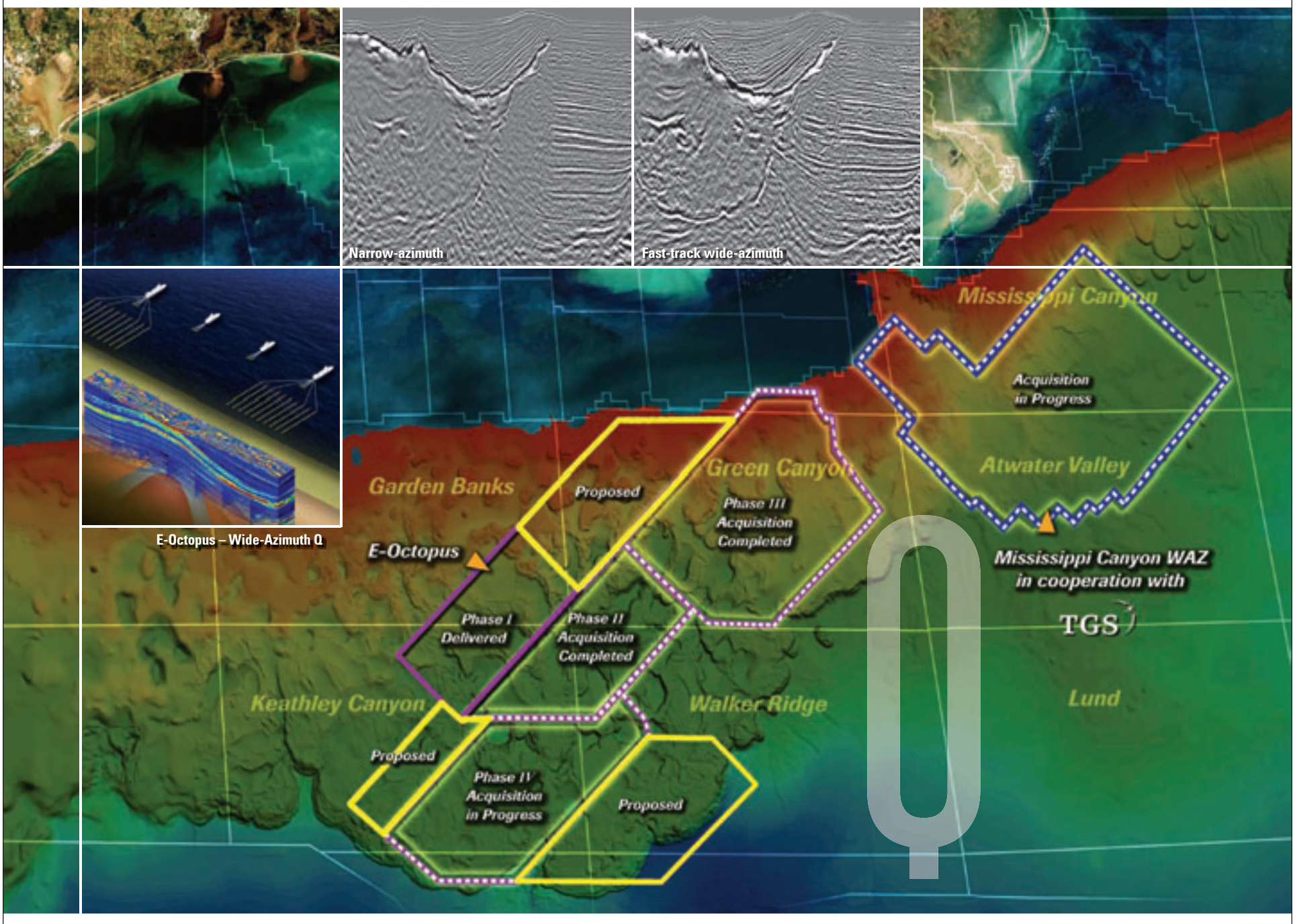

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