HGS Bulletin
Houston Geological Society
Volume 49 Number 8
April 2007

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The Bulletin
Houston Geological Society

Volume 49, Number 8 April 2007

## In Every Issue





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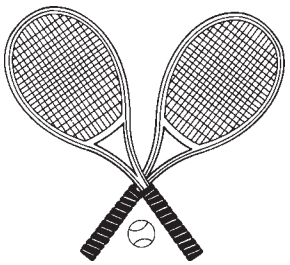

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**BE SURE TO VOTE!**

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**About the Cover:** Normal faults in silicic volcanic rock. Black Mountains, Death Valley, California. Reproduced with permission. Copyright Marli Bryant Miller, University of Oregon, visit www.marlimiller photo.com to see more of her excellent geological photographs. This photograph and many others can be viewed at the Earth Science World Image Bank, American Petroleum Institute, http://www.earthscienceworld.org, an excellent source for geological photographs.

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*by* ***Steve Brachman***

# Political Science

April 22nd is Earth Day. Prior to that, we will be treated to several weeks of environmental messages on television, radio, and in the newspapers. I am certain that many of these messages will concern global warming, and especially, anthropogenic (man-made) global warming. First, **I am not going to re-hash the global warming argument here**. That has been handled at length elsewhere. Second, to avoid typing "anthropogenic" throughout this letter, I will call it "a-warming".

*The result in my opinion is that, what began as a scientific debate now has degenerated into open warfare…we have reached the watershed where dissent is vilified, and scientific disagreement is politicized as fodder for talk shows.*

Rather than argue a-warming in this month's letter, I would like to discuss how the argument has affected the scientific community in general and geologists in particular. First, to be straightforward, I personally think the theory behind a-warming has little merit. But, as my wife says, who cares what I think! What is more important to me is the damage this issue has done to geologists and other scientists. Recently, Oregon Governor Ted Kulongoski confirmed that he wanted to strip the title of State Climatologist from Oregon State University's George Taylor because Taylor does not agree with Oregon's official a-warming stance (from KTW-TV report, Portland). Last year, I read an interesting article from Canada about how certain faculty at prominent universities, especially in the United States, have been pressured into conforming to the a-warming point of view. Apparently, so the story goes, if you are involved in climate and atmospheric research, it had better be pro-a-warming or don't count on any funding. This, of course, does not mean that all research that favors a-warming is due to coercion, it simply means that little or no funding is available to support the other viewpoint.

That was not always that case. In the recent past, several companies, most notably ExxonMobil and Ford, supported groups who engaged in research and published position papers contrary to a-warming. Both companies recently changed their positions. It is no secret that ExxonMobil, under new leadership, agreed to stop funding those groups and has now promised Stanford University $100 million to support their climate change research. What is somewhat less known is that ExxonMobil was actively encouraged to switch its stance by two U.S. Senators, Olympia Snowe, R- Maine, and Jay Rockefeller IV, D-West Virginia. They sent the new CEO an open letter saying that ExxonMobil "has an obligation and a responsibility to the global community to refrain from lending their support…to bogus, non substantiated articles and publications on climate change". The text of this letter is included in the In the News section within this *Bulletin*. Needless to say, the opinion of Senators who have the ability and the means to pass a Windfall Profits Tax carries a great deal of weight.

**From the President** *continued on page 11*

## New Office and Business Accounts Manager — Welcome Sandra Babcock

The Houston Geological Society and the Geophysical Society of Houston welcome Mrs. Sandra Babcock as their new Office/Business Accounts Manager. Mrs. Babcock succeeds Joan Henshaw who retired February 15 (see February *Bulletin*). Sandra brings more than 16 years experience to the position having worked as an administrative assistant in the Laredo Community College, the Alief School District and the Pregnancy Help Center-Katy/West Houston. Her skills and experience with Microsoft Office and QuickBooks will be put to use by both societies as well her fluency in Spanish. In her "spare" time, Sandra has been extremely and actively involved as a volunteer in community and church functions. Sandra is married to Jeffery Babcock who works in the Appellate Division of the Department of Justice here in Houston. They have two children, one daughter (graduated and out of the nest) and one son who attends the Wesley Academy.

Please drop by the new office location, introduce yourself to Sandra and Lilly and give her a warm welcome as our newest employee. ■

# HGS *Bulletin* Instructions to Authors

All materials are due by the 15th of the month, 6 weeks before issue publication. Abstracts should be 500 words or less; extended abstracts up to 1000 words; articles can be any length but brevity is preferred as we have a physical page limit within our current publishing contract. All submissions are subject to editorial review and revision.

**Text** should be submitted by email as an attached text or Word file or on a clearly labeled diskette in Word format with a hardcopy printout to the Editor.

**Figures, maps, diagrams,** etc., should be digital files using Adobe Illustrator, Freehand, Canvas or CorelDraw. Files should be saved and submitted in .eps (Adobe Illustrator) format. Send them as separate attachments via email or on a diskette or CD if they are larger than 1 MEG each, accompanied by figure captions that include the file name of the desired image. DO NOT EMBED them into your text document; they must be sent as separate files from the text. DO NOT USE POWERPOINT, CLIP ART or Internet images (72-DPI resolution) as these do not have adequate resolution for the printed page and cannot be accepted. All digital files must have 300-DPI resolution or greater at the approximate size the figure will be printed.

**Photographs** may be digital or hard copy. Hard copies must be printed on glossy paper with the author's name, photo or figure number and caption on the back. Digital files must be submitted in .jpg or .eps format with 300-DPI or greater resolution at the printing size and be accompanied by figure captions that are linked by the file name of the image. The images should be submitted as individual email attachments (if less than 1 MB) or on CD or zip disk.

## Advertising

The *Bulletin* is printed digitally using QuarkXPress. We no longer use negatives or camera-ready advertising material. Call the HGS office for availability of ad space and for digital guidelines and necessary forms or email to ads@hgs.org. Advertising is accepted on a space-available basis. **Deadline for submitting material is 6 weeks prior to the first of the month in which the ad appears.**

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### HGS Website Advertising Rates

The HGS Website is seen by many people each day. In recent months, we averaged about 47,000 visitors per month. You have a variety of options for advertising your company, your job openings, or your services on the Website. There are two sizes of ads on the home page, a 165x55 pixel logo along the right-hand border and a new 460x55 Banner ad across the top.

We also offer a Banner ad across the top of our monthly Newsletters sent to registered users of the Website. Job postings are available for $100 for 30 days on the Website but they must be geoscience jobs of interest to our members. Current HGS members may post their resumes at no charge. If you have a product or service available at no charge, you can post it in the Business Directory at no charge. Geo-related Business Cards and job openings may be posted directly by any registered user and members may post their own resumes. They will be activated as soon as practical.

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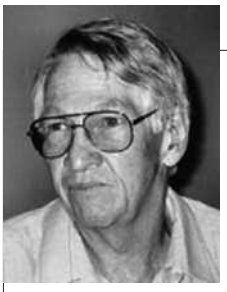

*by* ***Bill Rizer***
*editor@hgs.org*

# Online Voting Comes to HGS and Using Scaled Models

Highlights for the *Bulletin* this month include an invited technical paper by Martha Withjack, Roy Schlische and Alissa Henza of Rutgers University on "Scaled Experimental Models of Extension: Dry Sand vs. Wet Clay." This paper addresses two critical issues in physical modeling that have direct relevance to how we use models as an aid to interpretation and to predict structure in the subsurface. The short paper discusses the meaning of scaled models and how these models are constructed, and then shows examples of how two similarly scaled models using two different modeling materials give two very different results when deformed under the same boundary conditions. The differences are in how the deformation is distributed. In the more brittle sand models, deformation is concentrated (localized) along a few main faults. In the more ductile clay models, deformation is distributed widely among many smaller faults. Correct use of the models requires some knowledge of how deformation is distributed in the real structures, i.e., whether they act like brittle or ductile materials.

You may have noticed in recent years that the large majors have begun taking on complex and challenging projects that were considered too risky not long ago. Heavy oil, oil shale and deep water are just a few that come to mind. This month Michael Mileo of Chevron discusses one such project, Frade Field, a heavy oil concession in 1,100 m of water in the Campos Basin, offshore Brazil. The presentation, a jointly sponsored HGS and SPE luncheon, will be at the Petroleum Club on April 25.

*This year the HGS is developing an online voting system to make it easier for the membership to vote. All members who can should take advantage of this new system.*

Candidates for the various HGS offices are profiled in this issue. Not only do you get a chance to see what they look like, you get to read their bios and statements on why you should vote for them rather than the other ~~turkey~~ candidate(s). This year the HGS is developing an online voting system to make it easier for the membership to vote. All members who can should take advantage of this new system. Paper ballots will be provided for those who wish to mail in their choices. In either case, exercise your right to choose the officers who serve you. Information on how to vote will be forthcoming and will be posted on the Web site as soon as the system is ready.

The letters to the editor keep coming. This month's letter from Tom Ewing makes a number of important points, including one that I had not heard before—"…fossil fuels are chiefly responsible for the quality of life enjoyed by every American and much of the world. We (geoscientists and engineers) have found and are finding the wealth that has sustained the modern world." You are encouraged to read the entire letter.

**From the Editor** *continued on page 13*





# In the News

*by* ***Bill Rizer***

**Letter to ExxonMobil**
**By John D. Rockefeller Iv and Olympia Snowe**
October 27, 2006

**EDITOR'S NOTE:** *The following public domain letter is printed at the request of the HGS president. Readers will have a variety of responses to this letter and a variety of opinions regarding both the content of the letter and the motivations for its sending. The content does not necessarily represent the opinions or positions of the HGS. In fact, there is no consensus among the Board regarding issues related to climate change other than a conviction that each and every member is entitled to his/her own opinion and the right to speak it. As usual we welcome your opinions and thoughts. Keep those letters to the editor coming.*

Mr. Rex W. Tillerson
Chairman and Chief Executive Officer
ExxonMobil Corporation
5959 Las Colinas Boulevard
Irving, TX 75039
Dear Mr. Tillerson:
Allow us to take this opportunity to congratulate you on your first year as Chairman and Chief Executive Officer of the ExxonMobil Corporation. You will become the public face of an undisputed leader in the world energy industry, and a company that plays a vital role in our national economy. As that public face, you will have the ability and responsibility to lead ExxonMobil toward its rightful place as a good corporate and global citizen.

**In the News** *continued on page 13*

# More science than you can shake a pick at.

## Geological Tour Through Alaska: A Trans-Alaskan Transect - Gulf of Alaska to Prudhoe Bay on the Arctic Ocean

June 2-11, 2007

This AAPG Field Trip is a scenic and geologically fascinating South to North transect of Alaska across three mountain ranges to the Arctic Ocean and the Prudhoe Bay oil field – the largest oil field in North America. This trip will appeal to geologists and nature-lovers alike, as you will see parts of three national parks, active glaciers, wildlife, wilderness, the Prudhoe Bay field, and end with an aerial crossing of the Brooks Range by light two-engine aircraft.

**Begins in Anchorage and ends in Fairbanks, Alaska**

**$3,295** per person (increases to $3,395 after 4/20/06). Includes lodging (double occupancy), six lunches, bus transportation throughout trip, park entry fees, two cruises, Prudhoe Bay field tour, flight from Deadhorse to Fairbanks, and Dalton Highway guidebook

## Interpretation of Old DST's to Find Additional Oil & Gas Potential

June 4-8, 2007

Geologists, engineers & technicians who encounter or utilize DST results and reports in their exploration & production decisions will benefit from this AAPG Short Course. As will any professional who needs to make more sense of the numerous old DSTs which are present in so many wells. Particularly appropriate for those prospecting for bypassed pay using logs and geology, who may wish to verify their conclusions from the DST or for regional geologists using show maps of DST results. Also for those evaluating farmins or their own acreage where old wells with DSTs exist.

**$1,195**, AAPG members; **$1,295**, non-members (increases to $1295/1395 after 5/7/07), includes course notes and refreshments

## Predicting Clastic Reservoirs Using Applied Sequence Stratigraphy: Understanding the Fundamental Drivers of Basin Fill Architecture

June 9-16, 2007

Geologists and Geophysicists of all experience levels.

**Begins and ends in Salt Lake City, Utah**

**$2,000** (increases to $2,100 after 5/11/07), includes ground transportation, guidebooks, some meals

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

June 11-15, 2007

Exploration and development geologists and geophysicists interested in thrust-fold structures and tectonics-sedimentation interactions in compressional belts will benefit from this AAPG Short Course.

**Begins and ends in Barcelona, Spain**

**$1,750** USD (increases to $1,850 after 4/30/07), includes guidebook and course materials, internal and roundtrip transportation from Barcelona, lodging, and all meals.

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

June 11-16, 2007

This AAPG Short Course is beneficial to petroleum geologists, geophysicists and reservoir engineers who are working in carbonates and need to understand facies heterogeneities and porosity distribution on exploration and production scales.

**Begins and ends in Miami, Florida. Four days are spent on a chartered boat in the Bahamas.**

**$3,600** (increases to $3,700 after 5/14/07), includes flights to and from the Bahamas to Miami, boat, accommodation in the Bahamas and all meals

## Ancient Clastics: Book Cliffs and Canyonlands, Utah

June 11-19, 2007

For exploration and production geologists, geophysicists, log analysts, engineers, and exploration and development managers who want a thorough working knowledge of clastic depositional systems directly associated with energy resources.

**Begins and ends in Moab, Utah**

**$2,100** (increases to $2,200 after 5/14/07), includes 4-wheel-drive transportation and course notes on CD

*CEU's awarded for each successfully completed AAPG short course or field seminar. Space is limited and pricing is subject to change.*

For further information, please contact the AAPG Education Department
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AAPG GEOSCIENCE EDUCATION

# Lettters to the Editor

Bill Rizer, Editor
HGS *Bulletin*
Dear Bill;
Congratulations on a good October issue! And thank you for your editorial "We need to be better informed." I've been mulling over the question of climate change science / global warming policy for some time, and here are the main points I have come up with:

1) Most scientists involved with climate now agree that global warming is real, and is linked in large part to human production of 'fossil' $CO_2$ and other greenhouse gases. This warming is occurring rapidly, and will result in changes to which the natural world and the human world (i.e., the economy) will have difficulty adjusting.

There is always room in science for skeptics and contrarians, God bless them. But neither the progress of science or decisions on policy can wait for a unanimity that will never come. At this point, warming contrarians are looking more like the plate tectonic skeptics—they exist and have valid concerns, but do not substantively influence the course of argument. The arguments have a way of becoming 'religious issues' on both sides, where I define a religious issue as two sides looking at the same facts and seeing two different realities!

We do know that $CO_2$ has reached levels not seen in the last 800,000 years, that $CO_2$ is an important greenhouse gas and that global temperatures have been quickly warming. Although there is also an important influence from variations in solar radiation, it's hard to see the $CO_2$ increase as having little effect!

2) Geology tells us that the earth has seen some quick, traumatic climate changes before (such as the Younger Dryas at the close of the last Ice Age, and also the end of the Paleocene). But now and only now do we have 6 billion people trying to live a civilized life on it! Our civilization is dependent on staple crops grown in small productive areas, and most people live close to sea level. Our economic system is exquisitely tuned to 20th century climates. Any change, natural or human-caused, is bound to be difficult and costly.

Furthermore, we have cut up the natural world with roads, houses and businesses. Because of this, many species of the natural world can't adjust to changed climate, and will go extinct. How much any one species' extinction is worth to us is not known, but thinning and stretching the ecosystems can't do much good.

3) As resource geoscientists who find and characterize fossil fuels, we of AAPG have neither the standing nor the credibility by ourselves to recommend that society disregard global warming. Insofar as we do this (or are perceived to do this) in public policy statements, we compromise our ability to be effective in giving rational advice on the many other important policy matters that affect our profession. We begin, in the public's eye, to look like "tobacco scientists" that live in denial, and mislead people about real concerns because of their own economic self-interest. We must always examine our own motives, and balance our economic interests with our duty as scientists, as citizens and as children of God.

We do, however, just as you have written, have an obligation to inform ourselves as much as we can about the problem, and the contribution that geoscience makes to defining the problem and possible solutions. The committee that AAPG has recently assembled to review the issue and issue a report and fact sheet will provide us with up-to-date information that we can use.

4) We must help people distinguish between concern and alarmism. There are a lot of ways that global warming could become catastrophic (thermohaline collapse and ice sheet collapse being the main ones), but the likelihoods are small. Rational policy needs to be aware of these possible catastrophes but not driven solely by them.

There is a substantial industry "out there" that exists primarily to scare people. It draws on these catastrophic scenarios to move people to panicky action (or perhaps just to entertain them). We have had catastrophe scenarios since the 1970s at least—they all involve extrapolating some trend or another that we worry about into the near future, and showing how the world goes to perdition (e.g., Club of Rome, Population Bomb). The problems were real, and they are still with us, but the scenarios were always unrealistic. Scaring people is neither good science nor good policy!

5) What we need to remember—and we must say it at every turn, so that everybody knows it—is that **fossil fuels are chiefly responsible for the quality of life enjoyed by every American and much of the world.** We in the oil and gas industry have found—and are finding—the wealth that has made and sustained the modern world! Wealth that has allowed us to understand our world and develop the sciences and technologies that liberate us and may (hopefully) secure our future. That this process has had side effects is probably inevitable. We need to mitigate those consequences, not reject the process! We are not 'evil' for finding hydrocarbons, and much more of our fossil fuel resources will need to be found and produced before we achieve the promised land of renewable resources (and nuclear energy).

**Letters to the Editor** *continued on page 11*

## Letters to the Editor continued from page 9

The discovery of antibiotics allowed us to conquer bacterial diseases, but also led to the development of 'superbugs' resistant to antibiotics. So we shouldn't use antibiotics or research new ones? No, we should use them more wisely and mitigate the consequences.

Or, the discovery and use of fertilizers and machine tillage revolutionized agriculture, but led to soil erosion and nutrient pollution. So we should stop using fertilizers and tractors? No, we should introduce better practices, minimize pollution and erosion.

6) We have two energy imperatives in the next forty years: (I) minimize the effects of global warming, AND (II) provide the growing supplies of energy that the developed, and particularly the peoples of the developing world in their quest for a better life, will need. Both imperatives must be achieved subject to constraints: without major social disruption, with 'fairness' and with minimal disturbance to the political 'balance of power.' To fulfill the second imperative, we will need more of everything that we can produce: gas, coal, nuclear, conservation and renewables.

What are the policy implications for us as resource geologists? What message do we need to bring to the centers of power?

We are proud of our record in finding and producing the energy that the world needs, and intend to continue in that mission.

We recognize that there are by-products of energy production, such as 'fossil $CO_2$' pollution. These should be minimized and mitigated. Resource geoscientists stand ready to help (by easing natural gas supply shortages, and identifying sites for $CO_2$ sequestration).

We should oppose punitive taxes and policy decisions that suppress the finding and development of the fossil fuels that we must have in the next several decades to fulfill the supply imperative.

We should support market-based remedies for mitigation of by-products, as having the most effective track record in pollution control.

If taxes are introduced to support non-$CO_2$ producing energy sources:

- They must be fairly applied at the level of consumption. Government actions must not unfairly punish domestic independent energy companies while overseas suppliers benefit.
- They should only support real energy alternatives, not be wasted on products with net energy loss or insignificant gain, such as grain ethanol.
- Windfall profits taxes have no place in energy strategy.

Thanks for reading. Naturally, these are my personal views only, and NOT the official views of the HGS, AAPG or the Division of Professional Affairs.

Thomas E. Ewing
Frontera Exploration Consultants
San Antonio, Texas



## From the President continued from page 5

Not only has the a-warming debate polarized scientists in general, it also has divided the geologic community. In AAPG, global warming has split the society with most of the "oilies" on one side and most of the internationals/academics/students on the other. In fact, the a-warming crowd has warned that the organization will "whither-away" because students, young professionals, and internationals, the three targeted growth groups of AAPG, will refuse to join or quit due to an anti a-warming AAPG position. I do not doubt they are correct, to some extent. In fact one candidate for Vice President-Sections, John Armentrout, has made the stance of AAPG embracing the a-warming argument as the centerpiece of his campaign.

The result in my opinion is that, what began as a scientific debate now has degenerated into open warfare. Detractors of a-warming are accused of everything from embarrassing the scientific community to conspiring to commit crimes against the planet. Personally, I have made my decision based on the facts as I interpret them. If additional information becomes available to make me change my mind, I will do so. As of this moment, I think my beliefs are correct. No apologies are necessary. Discussions carried out on the national stage, however, seem to consist of 10% reason and 90% emotion. I do not believe that should be the case in the scientific community. Unfortunately, we have reached the watershed where dissent is vilified, and scientific disagreement is politicized as fodder for talk shows. We have reached that point, I believe, because many in the scientific community and elsewhere believe that combating a-warming is so important for the "common good", it is acceptable, or even commendable, to stifle debate, censor opposing opinions, and twist independent thought through coercion. I hope I am wrong, but if correct, we will have arrived at a sad state of affairs, ushering in a new age of de Tocqueville's "Tyranny of the Majority", this time as it applies to the advancement of science. Frankly, I can't wait until April 23. ■

# The 6th PESGB/HGS African Conference

## *AFRICA'S PETROLEUM SYSTEMS: FROM OUTCROP TO DEEPWATER*

**Cape Town Convention Centre , South Africa**

**11-13 September, 2007**

***Two days of Talks PLUS Field Trips***


# FINAL CALL FOR PAPERS

***Talks (11/12th) will include*:**

- Late Ordovician Reservoir Geometry from Outcrop, N Africa (BP)
- Comparison of Niger Delta and G. of Mexico Plays (Chevron)
- Tertiary Tectonostratigraphy and Petroleum Systems of Africa (K.Burke)
- The Santonian Event and its Petroleum Effects (W. Bosworth)
- Northern Red Sea Plays (Hess)
- Sub-Saharan Exploration Strategy (A. Beach)

***Post-Conference Events planned include:***

- Full screening of Seb Luning's film on Petroleum Geology of Libya (13th)
- One day 'tourist geology' field trip to the Cape of Good Hope (13th)
- Three day field trip to the famous Tanqua Karoo outcrops (12th-15th)

***Also planned are:***

- Core workshop, wine estate visits, opening and closing receptions and more…

**The Deadline for Abstracts has passed (March 30) and the technical program is being finalized**

Any further abstracts (circa 200 words) should be sent as soon as possible to Duncan Macgregor at duncan.macgregor@neftex.com or duncan.macgregor2@ntlworld.com. Extended abstracts are normally written once your paper is accepted and are issued on a conference CD.

**Pre-registration will be available April 1st.**

Further details will be listed in the PESGB newsletter and website. For sponsorship opportunities and associated exhibition space please contact Jennie at the PESGB office 011 (44) 20 7408 2000, jennie@pesgb.org.uk or visit www.pesgb.org.uk

The conference is sponsored/co-organised by PetroSA and supported by the Geological Society of South Africa and the Petroleum Agency of South Africa.

Convenors include: Ray Bate, Duncan Macgregor, Varsha Singh, Sumesh Naidoo, Jean Malan, Al Danforth, Ian Poyntz, Steve Henry

PESGB PetroSA Geological Society of South Africa GSSA

## From the Editor continued from page 7

This month the "Governmental Affairs" column describes a number of initiatives contained in the president's fiscal year 2008 budget request that are relevant to energy and climate change. In the same column, Henry Wise and Arlin Howles report that in a historical reversal from past policy the president admitted the "serious challenge of global climate change" in his State of the Union Address. They also report a number of hearings called by Democrats to address the issue of climate change and to investigate charges of censorship of government scientists and science to advance a particular political agenda. That issue is also discussed briefly in the "In the News" column. ■

## In The News continued from page 7

We are writing to appeal to your sense of stewardship of that corporate citizenship as U.S. Senators concerned about the credibility of the United States in the international community, and as Americans concerned that one of our most prestigious corporations has done much in the past to adversely affect that credibility. We are convinced that ExxonMobil's longstanding support of a small cadre of global climate change skeptics, and those skeptics access to and influence on government policymakers, have made it increasingly difficult for the United States to demonstrate the moral clarity it needs across all facets of its diplomacy.

Obviously, other factors complicate our foreign policy. However, we are persuaded that the climate change denial strategy carried out by and for ExxonMobil has helped foster the perception that the United States is insensitive to a matter of great urgency for all of mankind, and has thus damaged the stature of our nation internationally. It is our hope that under your leadership, ExxonMobil would end its dangerous support of the "deniers." Likewise, we look to you to guide ExxonMobil to capitalize on its significant resources and prominent industry position to assist this country in taking its appropriate leadership role in promoting the technological innovation necessary to address climate change and in fashioning a truly global solution to what is undeniably a global problem.

While ExxonMobil's activity in this area is well-documented, we are somewhat encouraged by developments that have come to light during your brief tenure. We fervently hope that reports that ExxonMobil intends to end its funding of the climate change denial campaign of the Competitive Enterprise Institute (CEI) are true. Similarly, we have seen press reports that your British subsidiary has told the Royal Society, Great Britain's foremost scientific academy, that ExxonMobil will stop funding other organizations with similar purposes. However, a casual review of available literature, as performed by personnel for the Royal Society reveals that ExxonMobil is or has been the primary funding source for the "skepticism" of not only CEI, but for dozens of other overlapping and interlocking front groups sharing the same obfuscation agenda. For this reason, we share the goal of the Royal Society that ExxonMobil "come clean" about its past denial activities, and that the corporation take positive steps by a date certain toward a new and more responsible corporate citizenship.

ExxonMobil is not alone in jeopardizing the credibility and stature of the United States. Large corporations in related industries have joined ExxonMobil to provide significant and consistent financial support of this pseudo-scientific, non-peer reviewed echo chamber. The goal has not been to prevail in the scientific debate, but to obscure it. This climate change denial confederacy has exerted an influence out of all proportion to its size or relative scientific credibility. Through relentless pressure on the media to present the issue "objectively," and by challenging the consensus on climate change science by misstating both the nature of what "consensus" means and what this particular consensus is, ExxonMobil and its allies have confused the public and given cover to a few senior elected and appointed government officials whose positions and opinions enable them to damage U.S. credibility abroad.

Climate change denial has been so effective because the "denial community" has mischaracterized the necessarily guarded language of serious scientific dialogue as vagueness and uncertainty. Mainstream media outlets, attacked for being biased, help lend credence to skeptics' views, regardless of their scientific integrity, by giving them relatively equal standing with legitimate scientists. ExxonMobil is responsible for much of this bogus scientific "debate" and the demand for what the deniers cynically refer to as "sound science."

A study to be released in November by an American scientific group will expose ExxonMobil as the primary funder of no fewer than 29 climate change denial front groups in 2004 alone. Besides a shared goal, these groups often featured common staffs and board members. The study will estimate that ExxonMobil has spent more than $19 million since the late 1990s on a strategy of "information laundering," or enabling a small number of professional skeptics working through scientific-sounding organizations to funnel their viewpoints through non-peer-reviewed websites such as Tech Central Station. The Internet has provided ExxonMobil the means to wreak its havoc on U.S. credibility, while avoiding the rigors of refereed journals. While deniers can easily post something calling into question the scientific consensus on climate change, not a single refereed article in more than a decade has sought to refute it.

Indeed, while the group of outliers funded by ExxonMobil has had some success in the court of public opinion, it has failed miserably in confusing, much less convincing, the **in The News** continued on page 15

## In The News continued from page 13

legitimate scientific community. Rather, what has emerged and continues to withstand the carefully crafted denial strategy is an insurmountable scientific consensus on both the problem and causation of climate change. Instead of the narrow and inward-looking universe of the deniers, the legitimate scientific community has developed its views on climate change through rigorous peer-reviewed research and writing across all climate-related disciplines and in virtually every country on the globe.

Where most scientists dispassionate review of the facts has moved past acknowledgement to mitigation strategies, ExxonMobil's contribution the overall politicization of science has merely bolstered the views of U.S. government officials satisfied to do nothing. Rather than investing in the development of technologies that might see us through this crisis—and which may rival the computer as a wellspring of near-term economic growth around the world—ExxonMobil and its partners in denial have manufactured controversy, sown doubt, and impeded progress with strategies all-too reminiscent of those used by the tobacco industry for so many years. The net result of this unfortunate campaign has been a diminution of this nation's ability to act internationally, and not only in environmental matters.

In light of the adverse impacts still resulting from your corporations activities, we must request that ExxonMobil end any further financial assistance or other support to groups or individuals whose public advocacy has contributed to the small, but unfortunately effective, climate change denial myth. Further, we believe ExxonMobil should take additional steps to improve the public debate, and consequently the reputation of the United States. We would recommend that ExxonMobil publicly acknowledge both the reality of climate change and the role of humans in causing or exacerbating it. Second, ExxonMobil should repudiate its climate change denial campaign and make public its funding history. Finally, we believe that there would be a benefit to the United States if one of the world's largest carbon emitters headquartered here devoted at least some of the money it has invested in climate change denial pseudo-science to global remediation efforts. We believe this would be especially important in the developing world, where the disastrous effects of global climate change are likely to have their most immediate and calamitous impacts.

Each of us is committed to seeing the United States officially reengage and demonstrate leadership on the issue of global climate change. We are ready to work with you and any other past corporate sponsor of the denial campaign on proactive strategies to promote energy efficiency, to expand the use of clean, alternative, and renewable fuels, to accelerate innovation to responsibly extend the useful life of our fossil fuel reserves, and to foster greater understanding of the necessity of action on a truly global scale before it is too late.

Sincerely,
John D. Rockefeller IV  Olympia Snowe

Letter printed in the *Wall Street Journal* as part of an editorial, *Global Warming Gag Order Senators to Exxon: Shut up, and pay up*, Monday, December 4, 2006. Can be viewed at http://www.opinionjournal.com/editorial/feature.html?id=110009338.


*The editorial preceding the ExxonMobil letter casts the document as part of a "campaign of intimidation against any form of global climate change dissent" and as a serious danger because of the two senators' power to "punish Exxon if it does not kowtow to them."*

### Report Claims Widespread Suppression of Federal Climate Research

A report released January 30, 2007, by the Union of Concerned Scientists (UCS) and the Government Accountability Project (GAP) claims that there has been widespread political interference in federal climate science. In a survey of more than 1600 federal climate scientists, nearly half reported pressure to eliminate the words 'climate change,' 'global warming,' or other similar terms from a variety of communications. Nearly half reported edits of their work that changed the meaning of their scientific findings, and half reported unusual or new requirements that impaired their ability to conduct climate research.

### Reference

Union of Concerned Scientists, 2007: Atmosphere of Pressure, Political Interference in Federal Climate Science, http://www.ucsusa.org/scientific_integrity/interference/atmosphere-of-pressure.html

The UCS and GAP testified before the House Committee on Oversight and Government Reform on January 30 and presented the results of their study. Another full committee hearing is scheduled for March 19.

In a related report (2007), the UCS accused ExxonMobil of underwriting a highly sophisticated campaign of disinformation to confuse the public and deceive them about the dangers of global warming. According to the report ExxonMobil spent about $16 million between 1998 and 2005 to manufacture uncertainty on the issue.

### Reference

Union of Concerned Scientists, 2007: Smoke, Mirrors & Hot Air, How ExxonMobil Uses Big Tobacco's Tactics to Manufacture Uncertainty on Climate Science, 88 p., http://www.ucsusa.org/news/press_release/ExxonMobil-GlobalWarming-tobacco.html.

**Monday, April 9, 2007**

Westchase Hilton • 9999 Westheimer
Social Hour 5:30-6:30 p.m.
Dinner 6:30 p.m.

Cost: $28 Preregistered members; $35 non-members & walk-ups

**The HGS prefers that you make your reservations on-line through the HGS website at www.hgs.org. If you have no Internet access, you can e-mail reservations@hgs.org, or call the office at 713-463-9476** (include your name, e-mail address, meeting you are attending, phone number and membership ID#).

# The Revitalization of Sligo Field

*by* ***Michael A. Geffert***

Prior to the formation of Greystone Petroleum LLC and its development of Sligo Field, located in Bossier Parish, Louisiana, Michael Geffert and Joe Bridges drilled and completed over 200 wells in Lower Cretaceous and Upper Jurassic reservoirs in the Ark-La-Tex area. Though these were primarily Hosston wells located on turtle structures in the North Louisiana Salt Basin, their experience in mapping, drilling and completing the Rodessa, Pettit, Hosston, Cotton Valley and Smackover reservoirs led them to the observation that completion procedures followed by Pennzoil and other operators at Sligo Field left many gas charged reservoirs either behind pipe or bypassed below packers and cast iron bridge plugs.

The productive limits of Sligo Field cover an area that is approximately five miles wide and eight miles long. A detailed correlation of over sixty-nine reservoirs in the field along with a careful evaluation of past production and remaining PDP reserves revealed that although Sligo field had produced over 500 BCFG from the Hosston formation, it still contained an additional 500 BCFG of behind pipe and proved undeveloped reserves. Similarl calculations indicated that the Cotton Valley formation had also been under evaluated and had also been prematurely abandoned.

The field wide decline curve seemed to indicate that Sligo Field was near depletion. However, through detailed reservoir evaluation work, as well as drilling, completion and remedial operations, Greystone was able to substantiate remaining reserve levels and revitalize the field, increasing production from 9.5 MMCFGPD to over 61.0 MMCFGPD at the date of sale with net reserves of approximately 237 BCFG to 444 BCFG.

Greystone Petroleum LLC was formed in April, 1995. Geffert and Bridges then spent one year evaluating the reservoirs at Sligo Field and six additional years attempting to purchase Pennzoil's interest in the field. In March 2002, Greystone purchased this interest from Devon Energy Corporation for 131 million dollars. The field was sold in June 2004 for an asset sale equivalent to 475 million dollars. ■

*…through detailed reservoir evaluation work, as well as drilling, completion and remedial operations, Greystone was able to substantiate remaining reserve levels and revitalize the field, increasing production from 9.5 MMCFGPD to over 61.0 MMCFGPD at the date of sale with net reserves of approximately 237 BCFG to 444 BCFG."*

### Biographical Sketch

In April 1995, **Michael A. Geffert** and Joe M. Bridges established Greystone Petroleum LLC, with Geffert as President and Chief Operating Officer. The business partners initially devoted a full year to evaluate Sligo Field in Bossier Parish, Louisiana. They then spent six years in a persistent acquisition effort, finally purchasing the field from Devon Energy in March, 2002.

In June, 2004, after an extensive presentation effort, management successfully sold Greystone Petroleum LLC to Chesapeake Energy Corporation for $425 million. Recently, Mr. Geffert and Mr. Bridges together formed Greystone Oil & Gas LLP, where they serve as managing partners. Greystone Oil & Gas continues to focus its exploitation, exploration and acquisition activities in the Mississippi-Arkansas-Louisiana-Texas region of the Gulf Coast. They also formed Greystone Drilling LP, a six rig drilling company, to facilitate their exploration and production operations.

Prior to Greystone Petroleum, Michael spent ten years as the Senior Vice President of Exploration and Production with Kelley Oil Corporation where he drilled over 220 wells in the Ark-La-Tex region. He began his career with Amoco Production Company where he spent more than four years as a geologist working primarily in East Texas. Michael has an MS in Geology from Stephen F. Austin State University.

**Monday, April 16, 2007**

# HGS International Explorationists Dinner Meeting

**Register Now! Registration deadline is Friday, April 13 5:30 PM**
Westchase Hilton • 9999 Westheimer
Social Hour 5:30-6:30 p.m.
Dinner 6:30 p.m.

Cost: $28 Preregistered members; $35 non-members & walk-ups

**The HGS prefers that you make your reservations on-line through the HGS website at www.hgs.org. If you have no Internet access, you can e-mail reservations@hgs.org, or call the office at 713-463-9476** (include your name, e-mail address, meeting you are attending, phone number and membership ID#).

*by* ***Alex Martinez, David McAdow and Matthew Novak***

*Sponsored by Dickson International Geosciences (DIGs) and Geochemical Solutions International*

# West Africa DHI's: Pushing the Envelope

**University and College Students Please Note:** the first 14 students can attend for free, compliments of Swift and ConocoPhillips. Additional students will be charged the emeritus rate, half the regular member rate. Students are encouraged to call the HGS office in advance of the meeting they wish to attend and to make a reservation; but walk-ins are also accepted at events. Students will need to identify themselves and provide school name and ID.

Tertiary clastic sedimentary rocks (primarily slope shales and turbidite sandstones) in the deepwater Lower Congo Basin have acoustic rock properties that allow seismic data to exhibit direct hydrocarbon indicators (DHI's). To date, DHI technology has been successfully used to help discover billions of barrels of hydrocarbon in the basin.

Not all seismic anomalies are DHI's and not all DHI's are of equal quality. For this reason a DHI rating and risking method has been developed to aid data analysis and determine risk of leads showing seismic amplitude anomalies. The method involves comparing the observed seismic anomaly to expected seismic responses and to other known DHI's for calibration. DHI attributes fall into general categories associated with the observed amplitude response and with conformance to structural and fluid contact reflections, but vary by other typically compaction-related rock properties. Seismic data quality and overlap between expected wet and hydrocarbon reservoir responses are also key factors used in the rating and risking process. Integration and rationalization of the DHI risk with geologic risk assessment is a final, critical step to ensure plausibility and reasonableness of the interpretations.

Historically, dry holes and sub-economic hydrocarbon accumulations have been associated with anomalies exhibiting only one or two DHI criteria. Those anomalies are now attributed to low-hydrocarbon saturation, anomalous shales or silts, very high porosity sands, or inadequate and/or substandard seismic data. Examples are presented to illustrate the techniques used to identify the spectrum of AVO classes and highlight the challenges in DHI prediction. Ultimately, our experience indicates that multiple DHI criteria (e.g., AVO, amplitude conformance, etc.) are associated with successful wells. Care should be taken to not technically rationalize the lack of these characteristics when fundamental rock physics suggests otherwise. ■

*…our experience indicates that multiple DHI criteria (e.g., AVO, amplitude conformance, etc.) are associated with successful wells*

### Biographical Sketch

Alex Martinez graduated from the University of Missouri, Rolla, with a BS in Geology and Geophysics in 1992, and the University of Kansas with an M.S. (1995) and PhD (1999) in Geophysics. While at KU he worked as a research assistant in the Petroleum Research Section of the Kansas Geological Survey. He was hired by Exxon Exploration Company and joined their Geophysical Applications group in 1999. Since then he has worked on geophysical problems in a variety of basins around the world. His specialties include seismic DHI/AVO analysis, rock properties, ground-penetrating radar and marine controlled-source electromagnetics (CSEM).

*DIGs, Geochemical Solutions International (GSI) and our Associates demonstrate hydrocarbon migration pathways and structural compartmentalization along the Gulf of Guinea margin from Nigeria to Angola by integrating multiple disciplines of geology, geochemistry and geophysics. For an illustration of data sets and methods at the April 16 HGS meeting, we will show our AAPG Long Beach poster "Doing The Geochemical 'Cotton Eye Joe' In West Africa (Niger Delta To Angola): Identifying The Source Of Radarsat Slicks With Piston Cores, Oil Samples, Potential Fields And Near-surface Seismic."* http://aapg.confex.com/aapg/2007am/techprogram/A111096.htm

**Tuesday, April 17, 2007**

# Environmental and Engineering Group Dinner Meeting

**New Location** Cheddar's • 10601 Westpark Drive
(the southwest corner of Westpark and Beltway 8)
Social 5:30 p.m., Dinner 6:30 p.m.

Cost: $25 Preregistered members; $30 non-members & walk-ups

**Make your reservations now on-line through the HGS website at www.hgs.org,** by calling 713-463-9476 or by e-mail to Sandra@hgs.org (include your name, meeting you are attending, phone number and membership ID#).

*by* ***Glenn R. Lowenstein, P.G.***
*Terrain Solutions, Inc*

## Ethics—How Much is it Worth

Abstract and Bio not available at the time of printing. Please check www.hgs.org for further information.

# Golf Tournament and Dinner
# Geophysical Society of Houston

| | | | |
|---|---|---|---|
| **DATE:** | **Monday, May 14, 2007** | **FORMAT:** | **Four Man Florida Scramble** |
| **PLACE:** | **Kingwood Country Club** | **COST:** | **$125.00 per person** |
| **TIME:** | **9:30 AM Registration**<br>**11:30 AM Tee off (Shotgun)** | **DEADLINE:** | **APRIL 15, 2007** |

**MAIL ENTRIES TO:**
**Fairfield Industries**
**14100 Southwest Freeway**
**Suite 600**
**Sugar Land, TX 77478**
**Attn: George Lauhoff**
**281-275-7623**

**MAKE CHECKS PAYABLE TO:**
**Geophysical Society of Houston**
**OR Circle one:**
**AMEX VISA MC**

**Card #** _____
**Expiration Date:** _____
**Signature:** _____

## GOLFERS READ CAREFULLY

***No entry will be accepted until the entry form and fees are received in full.*** **DON'T BE LATE WITH YOUR ENTRY FORMS AND FEES. AFTER THE APRIL 15TH DEADLINE, THE COST PER PERSON WILL BE $150.00 !!!**

**MULLIGANS $5.00 EACH (MAX. 2/PERSON) AVAILABLE AT CHECK-IN**

***If you are not playing golf but want to join your friends attending the dinner following the tournament, please send in $15.00 per person to cover the cost of the dinner. Make a note at the bottom of the check "Dinner Only". These checks should also be payable to the Geophysical Society of Houston.***

**GOLF TOURNAMENT FORM**
**You may select your own foursome, if not you will be assigned to a group. The first name listed will be considered the TEAM SPOKESPERSON.**

| | | | |
|---|---|---|---|
| **Name:** _____ | | **Name:** _____ | |
| **Company:** _____ | | **Company:** _____ | |
| **Phone:** _____ | **HDCP:** _____ | **Phone:** _____ | **HDCP:** _____ |
| **Name:** _____ | | **Name:** _____ | |
| **Company:** _____ | | **Company:** _____ | |
| **Phone:** _____ | **HDCP:** _____ | **Phone:** _____ | **HDCP:** _____ |

**Course Preference: ISLAND LAKE MARSH**
**(Circle One)**

**Thursday, April 19, 2007**

Petroleum Club • 800 Bell (downtown)
Social 11:15 a.m., Lunch 11:45 a.m.

Lunch meetings are $30 per person (until the Tuesday before the meeting); $35 for late registrations and at the door - no shows will be billed. Register online at http://www.sipes-houston.org/.

SIPES
**Luncheon Meeting**

*by* ***Mark Nibbelink***

# Exploration Trends in the TX, LA Gulf Coast—A 50,000 foot View

In an era of high wellhead prices it's no wonder that the development of in-field acreage is the quickest way to increased cash flow. It's also a good incentive for taking on more exploration and production risk. But how aggressively is our industry looking for new reserves? And how well is our community of Gulf Coast explorationists defining and meeting the challenge of adding meaningful new reserves?

We'll take a look at drilling and leasing trends and examine both the character and pace of new reserve additions, with an emphasis on defining the kinds of companies that are providing leadership. ■

*"how aggressively is our industry looking for new reserves? And how well is our community of Gulf Coast explorationists defining and meeting the challenge of adding meaningful new reserves?"*

**Biographical Sketch**

Born into an Army family in 1949, Mark spent his first 18 traveling the world with his family. Mark attended Dartmouth where he studied igneous and metamorphic petrology. Gulf Oil hired Mark in 1972 while still in graduate school, working the Mississippi Interior Salt Basin in Jackson, MS. Additional assignments included mapping a large offshore 2D data set over the Baltimore Canyon/Eastern Shelf area of the outer continental shelf (OCS). Mark then joined ERA North America, a small consulting group based in Connecticut that advised and positioned a joint venture of 4 companies bidding on Eastern OCS acreage. After successfully joining a major bid group at the Federal OCS sale, Mark became a geological observer on dives #785 and # 781 aboard the R.V. Alvin. These dives were the first descents to -5000 ft and -6000 ft into the submarine canyons off Georges Bank and were important to describing the stratigraphy of the outer continental shelf. Mark returned to the oil industry in 1980 and began seismic interpretation and well-site work in the south-central Texas Austin Chalk play. In 1986, Mark became an independent geologist pursuing the Jurassic in the under-explored areas of east Texas. In 1999, Mark co-founded DrillingInfo.com and has been its president since its inception.

## NeoGeos 2nd Annual Family BBQ at Bear Creek Park

**Saturday, April 28th, 11am to 4pm**

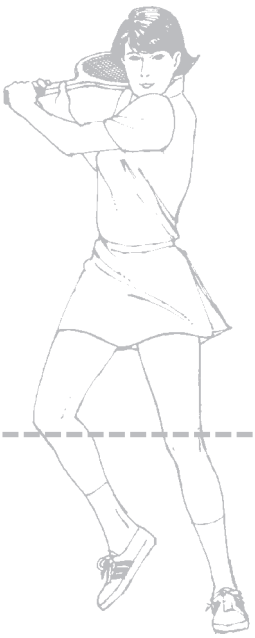
**Bear Creek Park Pavilion #2**

It's almost that time of year again! Plan to join us for sun and great BBQ. We have a pavilion this year! Bring your friends and family out to the park, along with your favorite dish or drinks to share. Last year's event included sack races, kite flying, frisbee, football and door prizes. Come join in the fun!!

Sponsorship opportunities are available! If you have any questions, donations for door prizes or would like to volunteer with planning this event, please email neogeos_houston@yahoo.com.

**Details available on the message board:**

**http://www.neogeos.org/bb/ in the NeoGeos Announcements Forum**



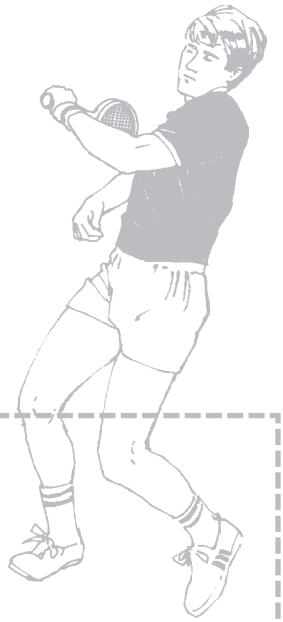
# HGS Tennis Tournament

## Friday, May 18, 2007

Location: Houston Racquet Club
10709 Memorial Drive

Time: 11:45 a.m. to 5:00 p.m.

Prizes: Div. A & B Prizes



Send a check for $50.00 and entry form to: DAVIS BROS.
1221 McKinney, Suite 3100, Houston, Texas 77010
Attn: Ross Davis, Tournament Director
Call (713) 659-3131 with questions; Fax (713) 659-8070
Rossdavis@davisbros.com

Name: _____

Address: _____

Phone: _____ Work Phone: _____

Rank (A, A-, B): _____ E-Mail: _____

# HGS Welcomes New Members

**Effective March 6, 2007**

**ACTIVE MEMBERS**

Hal Adams
Bob Barba
Cynthia Blaine
Patricia Bobeck
Phillip Cadarette
Matthew Carr
Richard Crounse
Clayton Davis
Myra Dria
Nicholas Drumstra
Joyce Foegelle
Wilton Guice, Jr.
Jyoti Kar
John Kolvoord
Jack Kerfoot
Jesse Kimball
Gabe Macias
Dallum Masterson
Jesus Mejorada
David Miller
Shawn Miller
Jace Morris
William Reay
Laurence Roe
Timothy Shepherd
R. Craig Shipp
Charles Smith
Gregg Smith
Gene Sparkman
William Stefanov
Michael Wakefield
David Wiltschko
Michael Winston

**ASSOCIATE MEMBERS**

Richard Ball
Lee Ann Henneke
Kevin O'Keefe
Syed Zaman

*Welcome New Members*

**Monday, April 23, 2007**

## HGS North American Explorationists Dinner Meeting

Westchase Hilton • 9999 Westheimer
Social Hour 5:30-6:30 p.m.
Dinner 6:30 p.m.

Reservation Deadline: Noon, Friday April 20th 2007
Costs before deadline: Member 28.00, Non-Member 35.00, Emeritus 14.00

**The HGS prefers that you make your reservations on-line through the HGS website at www.hgs.org. If you have no Internet access, you can e-mail reservations@hgs.org, or call the office at 713-463-9476** (include your name, e-mail address, meeting you are attending, phone number and membership ID#).

*by* ***William DeMis***

# Lessons Learned from By-Passed Plays: Mississippian Mission Canyon Play, North Dakota, USA; Shongaloo Field, Louisiana, USA; Salawati Basin, Indonesia

By-passed pays and plays are more common in petroleum exploration than most geoscientists might think. Pay can be missed for myriad reasons—lack of data integration, drilling problems, shaley sands, dual porosity in carbonates, inappropriate completion practices or incorrect $R_W$, to name a few. A field's true size can be under-estimated after discovery when assumptions made early in the process prove wrong. Fields can also be condemned as uneconomic if early, low estimated ultimate recovery (EUR) wells are interpreted as representative of the mean (EUR), and not as part of a log-normal distribution of EUR. Plays are by-passed if the risk is underestimated and too few wells are drilled to sufficiently test the play concept. Case studies provide instructive models to avoid future by-passed pays and plays.

*Pay can be missed for myriad reasons—lack of data integration, drilling problems, shaley sands, dual porosity in carbonates, inappropriate completion practices or incorrect $R_W$, to name a few*

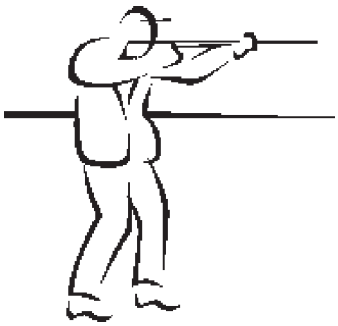
The Mississippian "Mission Canyon" play (cum: 352 BCFG, 259 MMBO) provides classic examples of both missed pays and a missed play. In the 1960s, Shell Oil Company drilled a dozen dry holes specifically targeting stratigraphic traps of the now-prolific Mission Canyon formation. Many of the now-known Mission Canyon fields have Shell wells offsetting them, or Shell "dry holes" drilled in them. Shell's stratigraphic model of prograding sabhka deposits was decades ahead of the rest of industry. Shell's 1950s seismic data defined the Billings Nose—a now-prolific anticlinal structure. Unfortunately, by underestimating the play's risk, Shell drilled too few wells to adequately test their stratigraphic-structural concept.

Shongaloo Field (cum: 159 BCFG; 19.7 MMBO) is a 10-mile long anticline located in the State Line Graben. Reservoirs include Jurassic Smackover "B" carbonates and the siliciclastic "C" sand. Marathon discovered the field in 1988 after drilling two dry holes along the crest in 1954 and 1972. Integrated well, core and seismic data (and drilling 50 wells) revealed that the field's true size extended beyond and included early "dry" holes.

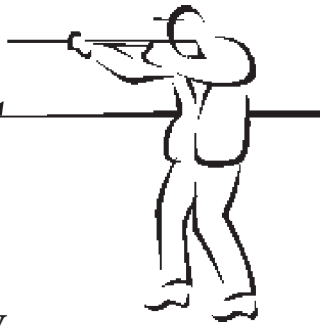
Shell Oil Company quit the Salawati Basin of Irian Jaya, Indonesia in 1960 after drilling 30 wells in the basin over 25 years, and finding only the Klamono Field (33 MMBOE MMBOE) and two sub-economic, one-well fields. In the late 1960's Trend Exploration entered the basin and found an additional 430 MMBOE. Trend Exploration used sample cuttings analysis from Shell dry holes to define a pinnacle reef fairway. Trend Exploration also found that some of Shell's seismic data was specifically shot around steeply-sloped hills on the otherwise flat coastal plain of Salawati Bay. The hills were the geomorphic expression of compaction drape above the pinnacle reefs at depth. ■

### Biographical Sketch

**William DeMis** is a geologist for the North American New Venture team at Marathon Oil Company. At Marathon, he has had both domestic and international assignments, and worked in Denver, Houston, Midland and Cody, Wyoming. Mr. DeMis earned a BS in Geology from the University of Wisconsin-Madison and an MA from the University of Texas at Austin. He has written two dozen papers on various topics in geology and oil-price economics. He is a former associate editor of the AAPG *Bulletin*, and former chair of the AAPG Publication Committee. He is a member of the HGS, RMAG and AAPG.



# *24th Annual HGS SKEET SHOOT*



## Saturday, June 16, 2007

Greater Houston Gun Club
6702 McHard Road, Missouri City

This tournament is a 50 target event. Shells are provided, however **you must bring eye and ear protection.** Greater Houston Gun Club and National Skeet Shooting Association safety rules will be in effect. Winning shooters will be determined by the Lewis class system. Door prizes will be awarded by blind drawing after the conclusion of shooting. All competitors are automatically entered into the door prize drawing, but you must be present at the time of the drawing to win.

BBQ lunch will be provided from 11:30 a.m. until 1:30 p.m.
Refreshments will be available throughout the day.

## IMPORTANT!!

**WE ARE LIMITED TO 160 SHOOTERS IN FOUR ROTATIONS. ENTRY FEE IS $60 PER SHOOTER FOR REGISTRATIONS RECEIVED BY FRIDAY, JUNE 8. AFTER JUNE 8, REGISTRATION WILL BE STRICTLY ON A "SPACE AVAILABLE" BASIS AND THE ENTRY FEE WILL BE $80 PER SHOOTER. REGISTER EARLY!!**

For more information, contact: Tom McCarroll at (713)419.9414 or hgs_skeet_shoot@yahoo.com.

**********

## HGS SKEET SHOOT REGISTRATION FORM

Name: _____ Company:_____

Email: _____ Phone:_____

Preferred shooting time: (circle one) 9:00 10:00 11:00 12:00

Indicate ammunition required: (circle one) 12 gauge 20 gauge

Please return form(s) with check for $60.00 per shooter, payable to: ***Houston Geological Society***

Mail to: ***Tom McCarroll • HGS Skeet Shoot • 816 Holton St • Bellaire TX 77401***

Registration Fee: $_____ + Sponsor contribution: $_____ = Total: $_____

***If you wish to shoot with a specific squad (5 shooters max.), please submit all forms together.***

**********

**ALL SHOOTERS WILL BE REQUIRED TO SIGN A DISCLAIMER OF RESPONSIBILTY BEFORE THEY WILL BE ALLOWED TO SHOOT!**

**Wednesday, April 25, 2007**

Petroleum Club • 800 Bell (downtown)
Social 11:15 a.m., Lunch 11:45 a.m.

Registration deadline is Mon April 23 11:30 AM

Cost: $30 with advance reservations, $35 for walk-ins, space available ($15 for Emeritus and Honorary).

**The HGS prefers that you make your reservations on-line through the HGS website at www.hgs.org. If you have no Internet access, you can e-mail reservations@hgs.org, or call the office at 713-463-9476** (include your name, e-mail address, meeting you are attending, phone number and membership ID#).

## Joint HGS and SPE Luncheon Meeting

*by* ***Michael Mileo***
*Frade Project Manager*
*Chevron*

# Development of the Frade Field, Offshore Deepwater Brazil, Northern Campos Basin

The Frade project is Chevron's recently announced deepwater heavy-oil development project requiring a capital investment of approximately 2.5 billion $US. The sanctioning of the Frade project marks a major milestone in an effort that began in 1997 when Brazil opened up its oil and gas reserves to foreign exploration. The Frade field is located in the Northern Campos Basin, approximately 370 kilometers offshore Rio de Janeiro, Brazil in 1,100 meters of water. The 154 $km^2$ Frade concession area is adjacent to the Petrobras Albacore Leste and Roncador developments. The field was discovered by Petrobras in 1986, and was subsequently appraised with a Petrobras well in 1989 and two Texaco wells in 2001.

Frade, a deep water heavy oil development project, has historically been both technically and economically challenged. The inherent subsurface and surface complexities alone might have shelved the development of this asset—particularly in the early evaluation stage. Moreover, the fiscal and political landscape in Brazil has been less than predictable raising additional obstacles to project success. After merging with Texaco in 2001, Chevron realized that a different approach would be required to determine the true value of the Frade asset, and initiated a systematic and standardized asset valuation process for Frade as part of its worldwide portfolio management exercise.

*Chevron realized that a different approach would be required to determine the true value of the Frade asset, and initiated a systematic and standardized asset valuation process for Frade as part of its worldwide portfolio management exercise."*

A phased subsurface evaluation strategy, using subsea wells, is being implemented in the development of Frade to better manage subsurface complexity and uncertainty. In addition, to facilitate smooth facilities startup, Chevron is using Petrobras' tried and true development methods in the Campos Basin and using vendors and contractors with proven track records working in Brazil.

The structure is a low relief anticline with two main fault blocks consisting of three stacked reservoirs, and spans an area of 20 $km^2$. The field will require water injection from the beginning of production to maintain reservoir pressure and maximize the life of the field and the ultimate oil recovery.

The current development scenario consists of a total of 19 wells, 12 horizontal production and 7 vertical injection wells. The production wells will utilize an open-hole gravel pack completion with gas lift, and will be tied back to a floating production storage and offloading (FPSO) vessel. The FPSO will have the capacity to process 100,000 barrels of oil per day, compress 106 million standard cubic feet of natural gas, and store 1.5 million barrels of oil. The subsea architecture consists of a series of production flowlines, gas lift and water injection pipelines, and umbilicals. The production wells will be paired together to provide pigging loops, while the water injection wells will be connected through a pipeline and umbilical loop. The gas lift pipelines and production umbilicals will be manifolded to supply up to 4 production wells. Surplus gas will be routed to shore via existing Petrobras pipelines in the area, while the processed oil will be transported with conventional trading tankers and sold on the world market.

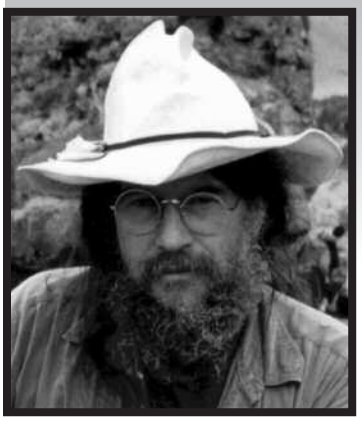
All major drilling and facilities contracts were awarded in 2006. Detailed engineering is essentially complete with manufacturing and construction activities currently underway. Offshore facilities installation and well drilling is anticipated to take place in 2008, resulting in first production from the Frade field during the first quarter of 2009. ■

**Joint HGS and SPE** *continued on page 29*

# HGS Guest Night – Saturday, June 16, 2007

## Houston Museum of Natural Science 6:30 P.M.–10:30 P.M.

# AMAZING FOSSILS from the Permian of Texas



**Speaker: Dr. Bob Bakker PhD**

**Dinosaur Curator for the Houston Museum of Natural Science**

**Author of the *Dinosaur Heresies* and *Raptor Red***

**The Guest Night program includes door prizes, a buffet dinner and social hour. Use the HGS Website to sign up and pay by credit card. OR fax or mail this form to the HGS office to reserve spaces for this sell-out event. The HGS must receive payment in advance! No sales at the door.**

**Adults: $30 each, HGS members: please include your member number**

Name: _____ Member # _____

Name: _____

Name: _____

**Students (grades 1-college) $25 each**

Name: _____

Name: _____

Total amount: _____

Send check and form to: HGS Office, Guest Night 2007, 14811 St. Mary's Lane, Suite 250, Houston, Texas 77079
or fax this form with credit card number to 281-679-5504

Credit Card number and type: _____

_____ **Expiration Date (required):** _____

Name on Credit Card: _____

Daytime Phone number of Card Holder: _____

Billing Address for Card: _____

City, State and Zip: _____

**Many thanks to our Guest Night corporate sponsors**

bhpbilliton TGS SCA Schlumberger bp

## Joint HGS and SPE Meeting continued from page 27



### Biographical Sketch

**Michael A. Mileo** is a project manager in Chevron's Project Resource Company, based in Houston, Texas. He joined Texaco in 1982 as a civil engineer in the Offshore District Office in Morgan City, Louisiana. During his more than 24 years with Texaco and now Chevron, Mr. Mileo has held a variety of project and facilities engineering management positions of increasing responsibility. He has been a project manager for both domestic and international upstream projects. In his current role as the Frade Project Manager, he has been responsible for the Frade project from initial asset evaluation and development concept screening through project commercialization and now project execution. His areas of responsibility include subsurface evaluation, well construction and drilling, facilities design and construction, and operations planning and assurance.

Mr. Mileo received both a BS and an MS in civil engineering from Bucknell University. He is a Certified Project Management Professional (PMP), as well as Licensed Civil Engineer in the states of Louisiana and Texas.

# Scaled Experimental Models of Extension: Dry Sand vs. Wet Clay

*by* ***Martha Oliver Withjack, Roy W. Schlische, and Alissa A. Henza***
*Department of Geological Sciences, Rutgers University, Piscataway, NJ*

## Abstract

The choice of modeling material—dry sand or wet clay—affects the style and distribution of deformation in scaled experimental (analog) models of extension. For example, fault-zone widths are greater in sand than in clay, possibly reflecting the marked difference in maximum grain size of the modeling materials (<0.5 mm for dry sand vs. < 0.005 mm for wet clay). Most differences in the deformation patterns, however, reflect differences in the ductility of the modeling materials.

Normal faults are long, planar and hard-linked (i.e., directly connected) in the dry sand with its low ductility, whereas normal faults are short, curved and soft-linked (i.e., not directly connected) in the wet clay with its higher ductility. A few large normal faults accommodate most deformation in the sand models, whereas a few large faults and numerous small faults accommodate most deformation the clay models. Little folding occurs in the sand models, but folds are common in the clay models.

## Introduction

For more than seventy-five years, geologists have used scaled experimental (analog) models to simulate extensional deformation in the upper crust (e.g., H. Cloos, 1928, 1930; E. Cloos, 1968; McClay and Ellis, 1987a, 1987b; Withjack et al., 1990, 1995; Withjack and Callaway, 2000; Schlische et al., 2002; Withjack and Schlische, 2006; Schreurs et al., 2006). These models provide valuable information about deformational processes. For example, they suggest how normal faults nucleate, propagate and link. Geologists can use this information to better understand a basin's petroleum system (e.g., its depositional patterns, migration pathways) and to minimize the uncertainties and risks associated with hydrocarbon exploration and production.

How well do these scaled experimental models simulate nature? The goal of this article is to address this fundamental question by looking at the influence of modeling materials on modeling results. First, we describe the key properties of the most common modeling materials—dry sand and wet clay—and discuss the basics of scaling. Second, we compare the results of sand and clay models for three common experimental setups of extensional deformation. Finally, we compare the results of the sand and clay models with natural examples of extensional deformation from rift basins and passive margins.

## Modeling materials and scaling

The strength of most upper crustal rocks increases with depth, obeying a Mohr-Coulomb criterion of failure (e.g., Byerlee, 1978). According to this criterion,

$$\tau = C_0 + \mu\sigma_n \quad (1)$$

where $\tau$ and $\sigma_n$ are, respectively, the shear and normal stresses on a potential fault surface, $C_0$ is the cohesive strength and $\mu$ is the coefficient of internal friction. This empirical criterion of failure describes the initiation of new faults, but not the reactivation of existing faults. For most sedimentary rocks, the coefficient of internal friction ranges from about 0.55 to 0.85 (e.g., Handin, 1966; Byerlee, 1978). For many intact sedimentary rocks, the cohesive strength is about 20 MPa (Handin, 1966), whereas for highly fractured sedimentary rocks, the cohesive strength is significantly less (e.g., Byerlee, 1978; Brace and Kohlstedt, 1980).

The two most common modeling materials used to represent upper crustal rocks are dry sand and wet clay. The dry sand is composed of fine quartz grains with diameters of less than 0.5 mm. The wet clay is composed predominantly of kaolinite particles (less than 0.005 mm in diameter) and water (~40% by weight). The properties of dry sand and wet clay are well documented (e.g., Richard and Krantz, 1991; Vendeville et al., 1995; Withjack and Callaway, 2000; Eisenstadt and Sims, 2005; Withjack and Schlische, 2006; Schreurs et al., 2006). Both modeling materials have similar densities ($\rho \sim 1600$ kg m$^{-3}$). Like upper crustal rocks, both modeling materials have strengths that obey a Mohr-Coulomb criterion of failure. Their coefficients of internal friction are similar (0.5 for dry sand; 0.6 for wet clay), but their cohesive strengths are different (negligible for dry sand; ~50 Pa for wet clay).

Two conditions must be satisfied to create a scaled experimental model (e.g., Hubbert, 1937; Weijermars et al., 1993; Vendeville et al., 1995; Withjack and Callaway, 2000). First, the coefficient of friction of the modeling materials must be similar to that of upper crustal rocks. Second,

$$C_0^* = \rho^* \cdot g^* \cdot L^*, \quad (2)$$

where $C_0^*$, $\rho^*$, $g^*$ and $L^*$ are ratios of model to natural prototype for cohesive strength, density, gravity, and length, respectively. In our models, the values of $\rho^*$ and $g^*$ are about 0.7 and 1, respectively, and $L^*$ is $10^{-4}$ to $10^{-5}$ (i.e., 1 cm in the models equals 100 to 1000 m in nature). Thus, the second condition requires that the cohesive strength of the modeling materials must be approximately $10^{-4}$ to $10^{-5}$ of the cohesive strength of upper crustal rocks. These two conditions ensure that: 1) all forces, stresses and strengths in the models are scaled down by the same amount as the corresponding forces, stresses and strengths in nature, and

**Scaled Experimental Models of Extension** *continued on page 33*

## Scaled Experimental Models of Extension continued from page 31

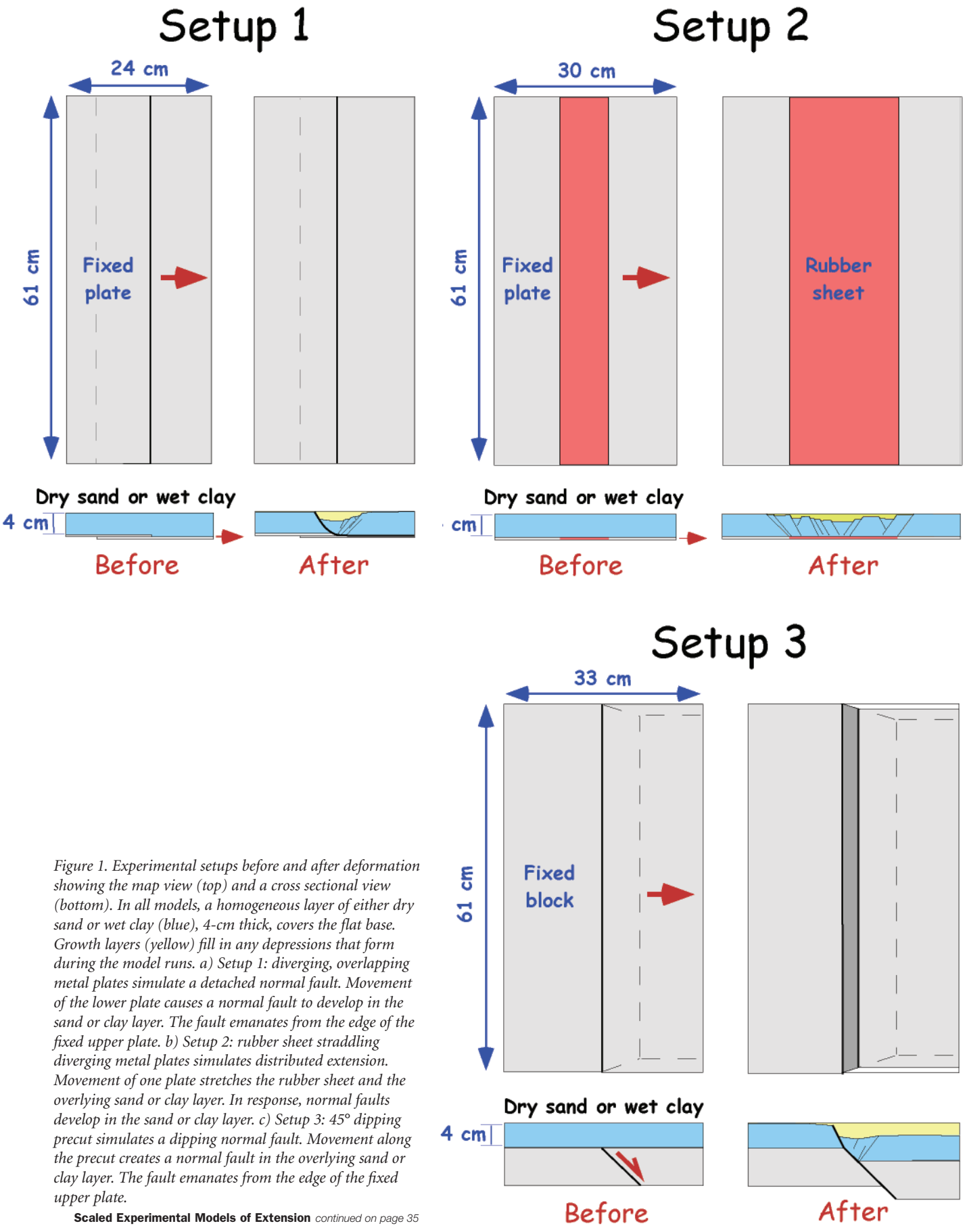



*Figure 1. Experimental setups before and after deformation showing the map view (top) and a cross sectional view (bottom). In all models, a homogeneous layer of either dry sand or wet clay (blue), 4-cm thick, covers the flat base. Growth layers (yellow) fill in any depressions that form during the model runs. a) Setup 1: diverging, overlapping metal plates simulate a detached normal fault. Movement of the lower plate causes a normal fault to develop in the sand or clay layer. The fault emanates from the edge of the fixed upper plate. b) Setup 2: rubber sheet straddling diverging metal plates simulates distributed extension. Movement of one plate stretches the rubber sheet and the overlying sand or clay layer. In response, normal faults develop in the sand or clay layer. c) Setup 3: 45° dipping precut simulates a dipping normal fault. Movement along the precut creates a normal fault in the overlying sand or clay layer. The fault emanates from the edge of the fixed upper plate.*

**Scaled Experimental Models of Extension** *continued on page 35*

# Scaled Experimental Models of Extension continued from page 33



2) the strikes and dips of the faults (relative to the principal stress axes) that develop in the models are similar to those in nature. Both conditions are satisfied with either dry sand or wet clay as the modeling material.

Although both dry sand and wet clay are suitable modeling materials to represent upper crustal rocks, they have different deformational styles related primarily to their different ductilities. Ductility reflects the capacity for distributed deformation at the scale of observation (Rutter, 1986). A great variety of deformation mechanisms ranging from fracturing/faulting to intracrystalline plasticity to diffusive mass transfer can produce ductile behavior (e.g., Rutter, 1986). In both dry sand and wet clay, the primary deformation mechanism is fracturing/faulting (e.g., Maltman, 1987; Richard and Krantz, 1991; Withjack and Callaway, 2000). Dry sand has a low ductility because most deformation is localized on a few major faults, even when strains are small. Wet clay has a high ductility because deformation is distributed on numerous minor to major faults. With increasing strain, however, most deformation becomes localized on a few major faults, even in the clay. To better understand the role of ductility on the results of scaled experimental models, we have compared the results from three identical models of extension using dry sand and wet clay as the modeling materials.

## Experimental design

We have modeled extensional deformation using three common experimental setups (Figure 1). In all setups, a 4-cm thick, homogeneous layer of dry sand or wet clay overlies the flat base of the apparatus. In setup 1, two overlapping plates form the base of the apparatus. As the lower plate moves outward (at a constant rate), a normal fault propagates upward from the fixed edge of the upper plate through the overlying sand/clay layer. In setup 2, two plates form the base of the apparatus. An 8-cm wide sheet of rubber, attached to both plates, straddles the plate boundaries. As one plate moves outward (at a constant rate), the rubber sheet stretches and normal faults develop in the overlying sand/clay layer. In setup 3, two blocks separated by a 45°dipping precut surface form the base of the apparatus. As the hanging-wall block moves downward (at a constant rate), a normal fault propagates upward from the fixed edge of the footwall block through the overlying sand/clay layer. Photographs of the top surface of the models, taken at regular intervals, record the surface deformation through time. In several experiments, we fill in subsiding areas with either dry sand or wet clay at regular intervals to simulate deposition during deformation. These growth layers initially have a flat upper surface. After these experiments, we vertically slice the models, creating serial cross sections.

## Comparison of sand and clay models

### Similarities

Overall, fault patterns are similar in the sand and clay for all three experimental setups. High-angle (dipping 60°–65°) normal faults develop in both the dry sand and the wet clay (Figure 2). The faults strike approximately perpendicular to the extension direction in all models. For example, Figures 3a and 3b show the top surface of the sand and clay models for setup 2 (distributed extension) after 4 cm of displacement.

### Differences

Deformation patterns differ in the sand and clay in several fundamental ways. Fault-zone widths are greater in the sand models than in the clay models (e.g., Figure 2a, right side). Faults in the sand are several millimeters wide, whereas faults in the clay are less than 0.1 mm wide. This difference in fault-zone width reflects the significant difference in the grain size of the modeling materials. Normal faults are long, relatively planar and hard-linked (i.e., directly connected to each other) in the sand models in both cross-sectional view (Figure 2) and map view (Figure 3). In the clay models, the normal faults are shorter, curved and soft-linked (i.e., not directly connected) in cross-sectional view (Figure 2) and map view (Figure 3). Previous work (Maltman, 1987) and recent studies (Granger et al., 2006) show that the surfaces of normal faults in the clay have numerous small-scale undulations that parallel the displacement direction (Figure 3e).

Fault distributions vary in the sand and clay models. Major faults accommodate most of the deformation in the sand models, whereas minor faults accommodate most deformation in the clay models. For example, 85% of the imposed displacement is accommodated by major faults, either the main normal fault or major secondary faults, in the sand model of setup 1 (Figure 2a). Only 15% of the imposed displacement is accommodated by minor secondary faults or cataclastic flow. In the corresponding clay model of setup 1, only 44% of the imposed displacement is accommodated by major faults, either the main normal fault or major secondary faults (Figure 2a). More than 55% of the imposed displacement is accommodated by minor secondary faults or by cataclastic flow.

Another major difference between the sand models and clay models is the lack of folds in the sand compared to the clay. Numerous relay ramps and fault-displacement folds develop in the clay where they provide displacement transfer between the normal faults that die out along strike. (e.g., Figure 3b, 3d, and 4a). Fault-bend folds also develop in the clay. For example, a faulted fault-bend fold (rollover fold) develops in the hanging wall of the main normal fault in the clay model of setup 1 (Figure 2a, bottom; Figures 4b, 4c). In contrast a series of relatively rigid fault blocks forms in the hanging wall of the main normal fault in the sand model of setup 1 (Figure 2a, top). As displacement on

Scaled Experimental Models of Extension continued on page 36

# Scaled Experimental Models of Extension

continued from page 35

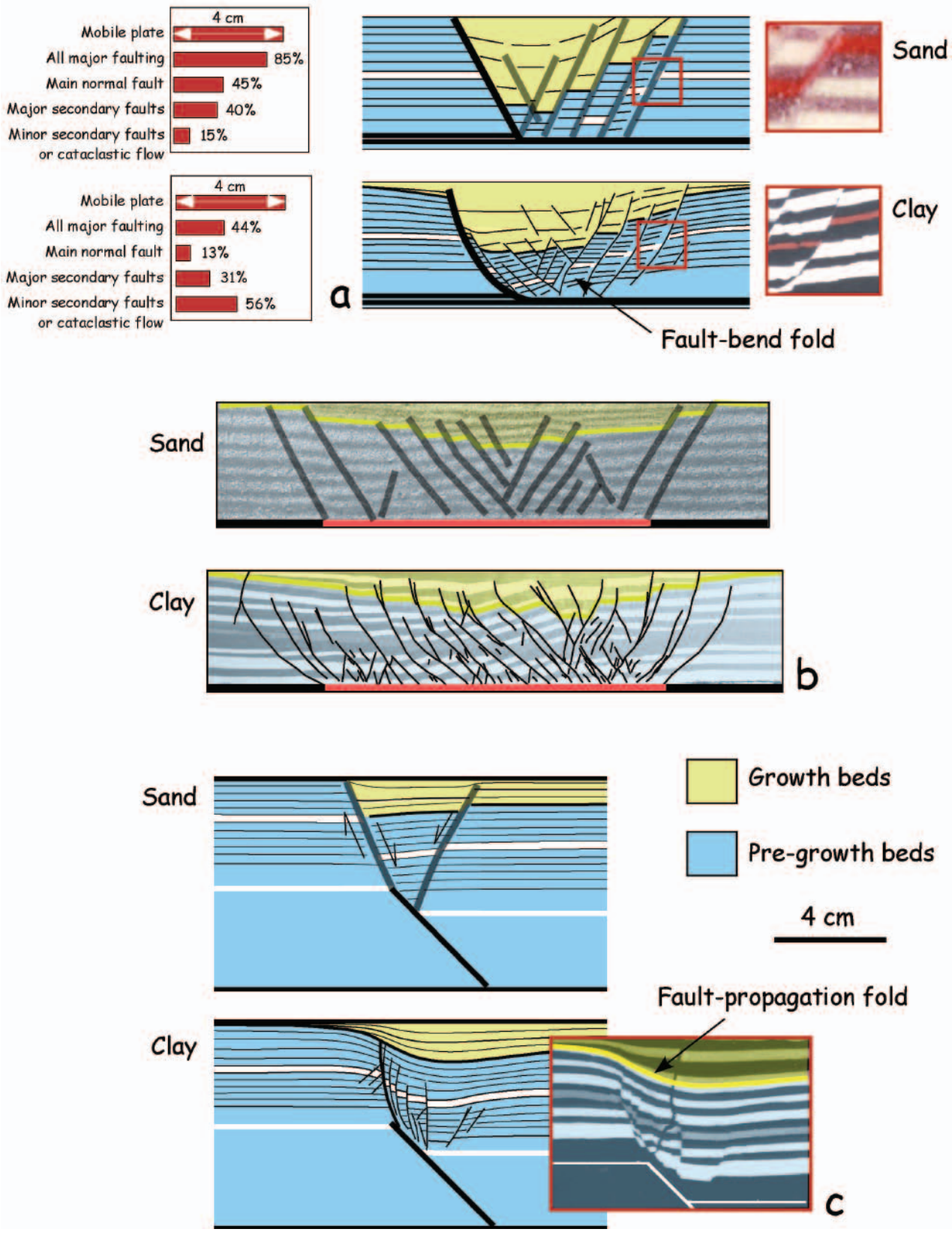
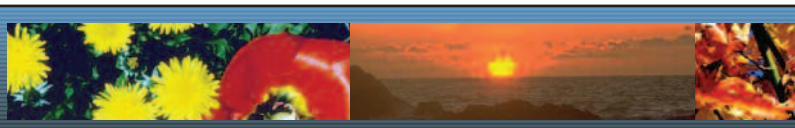



*Figure 2. Cross sections through the sand and clay models for the three experimental setups. All cross sections are shown at the same scale. Black lines are interpreted faults. a) Cross sections through setup 1 for sand (top) and clay (bottom) after 4 cm of displacement on moving plate. The two photographs on the right show enlargements of fault zones from the models. The red outline boxes show the photographs' locations. Diagrams on the left show the distribution of deformation in the sand and clay models. b) Cross sections through setup 2 for sand (top) and clay (bottom) after 4 cm of stretching of the rubber sheet. c) Cross sections through setup 3 for sand (top) and clay (bottom) after 1.4 cm of displacement. The photograph on the right shows the faulting and folding in the clay model.*

**Scaled Experimental Models of Extension** continued on page 41

# April 2007



| Sunday | Monday | Tuesday | Wednesday |
|---|---|---|---|
| 1<br>**AAPG 2007 Annual Convention**<br>*Long Beach, California* | 2 | 3 | 4 |
| 8 | 9<br>**HGS General Dinner Meeting**<br>by Michael Geffert<br>*"The Revitalization of Sligo Field"*<br>Page 17 | 10<br>**HGS Executive Board Meeting** | 11<br>**Digital Energy Conference & Exhibition**<br>George R.Brown Convention Center |
| 15<br>**HGS at Houston Grand Opera**<br>*Verdi's Aida*<br>Page 42 | 16<br>**HGS International Dinner Meeting**<br>by Alex Martinez<br>*"West Africa DHI's: Pushing the Envelope"*<br>Page 19 | 17 **GSH Luncheon Meeting**<br>by Nick Moldoveanu<br>*"Over/Under Towed Streamer Acquisition: a Method to Extend the Seismic Bandwidth"*<br>**HGS Environmental and Engineering Dinner Meeting**<br>*"Ethics—How Much is it Worth"* Page 21 | 18 |
| 22 | 23 **HGS North American Dinner Meeting**<br>by Bill DeMis<br>*"Lessons Learned from By-Passed Plays: Mississippian Mission Canyon play, North Dakota; Shongaloo Field, Louisiana; Salawati Basin, Indonesia"*<br>Page 25 | 24 | 25<br>**Joint HGS and SPE Luncheon Meeting**<br>by Michael Mileo<br>*"Frade Field Development, Deepwater Campos Basin, Brazil"*<br>Page 27 |
| 29 | 30<br>**Offshore Technology Conference** | | |


# GeoEvents

| Thursday | Friday | Saturday |
|---|---|---|
| 5<br>**SPE: 6th Annual Drilling Symposium** | 6<br>**NOW you can make your reservations on-line at www.hgs.org** | 7 |
| 12 | 13 | 14 |
| 19<br>**SIPES Luncheon Meeting**<br>by Mark Nibbelink<br>*"Exploration Trends in the TX, LA Gulf Coast—A 50,000 foot View"*<br>Page 23 | 20 | 21 |
| 26 | 27 | 28<br>**NeoGeos 2nd Annual Family BBQ at Bear Creek Park**<br>*11 am – 4 pm*<br>*Bear Creek Park Pavillion #2*<br>Page 23 |

**Reservations:**

The HGS prefers that you make your reservations on-line through the HGS website at www.hgs.org. If you have no Internet access, you can e-mail reservations@hgs.org, or call the office at 713-463-9476. **Reservations for HGS meetings must be made or cancelled by the date shown on the HGS Website calendar, normally that is 24 hours before hand or on the last business day before the event.** If you make your reservation on the Website or by email, an email confirmation will be sent to you. If you do not receive a confirmation, check with the Webmaster@hgs.org. Once the meals are ordered and name tags and lists are prepared, no more reservations can be added even if they are sent. **No shows will be billed.**

**Members Pre-registered Prices:**

| | |
|---|---|
| General Dinner Meeting | $28 |
| Nonmembers walk-ups | $35 |
| Env. & Eng. | $25 |
| Luncheon Meeting | $30 |
| Nonmembers walk-ups | $35 |
| International Explorationists | $28 |
| North American Expl. | $28 |
| Emerging Technology | $25 |

## Upcoming GeoEvents

**Thursday, May 3**
The Next Wave, *an Offshore Technology Conference program for young professionals*

**Wednesday – Friday, May 9 – 11**
SPE: Reservoir Simulation for Practical Decision Making

**Friday, May 11**
SEG Disc Program
*by Biondo Biondi, Seismic Imaging*

**Monday, May 14**
GSH Golf Tournament
*Kingwood Country Club*

HGS General Dinner
*by John Bickley, Improving Tight Gas Sand Production at Pinedale Anticline*

**Tuesday, May 15**
HGS Northsiders Luncheon
*Speaker TBA*
HGS Environmental & Engineering Dinner, *Speaker TBA*

**Monday, May 21**
HGS International Explorationists Dinner, *by Jack Kerfoot, Exploration & Production Trends and National Oil Companies*

**Tuesday, May 29**
North American Explorationists Dinner, *by Matt Williams, Overton Cotton Valley Sand Field, Smith and Cherokee Counties, TX: Expansion, Development and Optimization of a Jurassic Tight Sandstone Reservoir*

**Wednesday, May 30**
HGS Luncheon
*By Dan Steward, The Barnett Shale Play: Phoenix of the Ft. Worth Basin, A History*

## Scaled Experimental Models of Extension continued from page 36

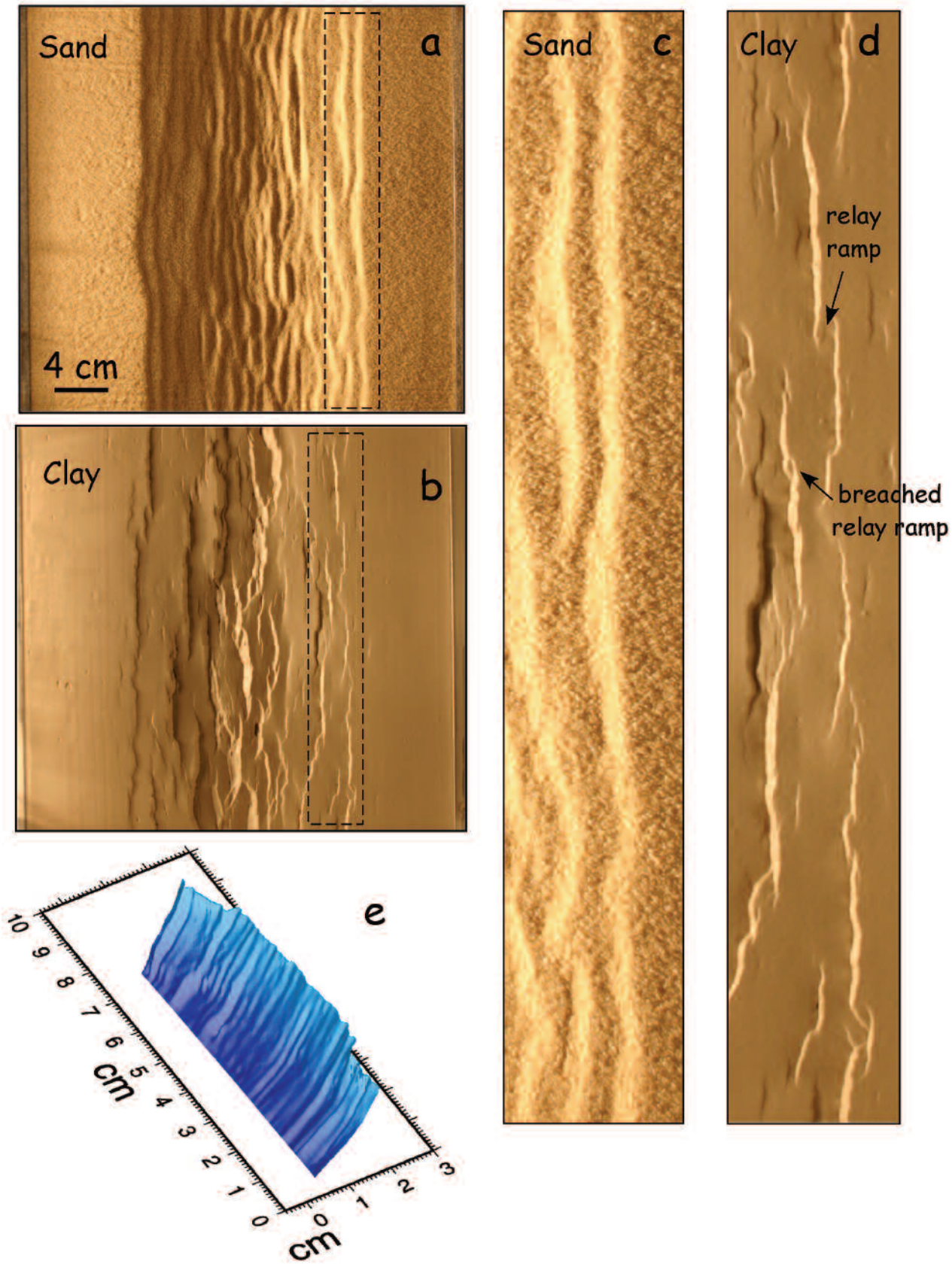



*Figure 3. Map views of sand and clay models for setup 2 after 4 cm of stretching of the rubber sheet. a) Photograph of top surface of sand model. b) Photograph of top surface of clay model. c) and d) Close-up photographs of sand and clay models. The dashed lines in a) and b) show photographs' locations. e) Crenulations on a fault surface from clay model in setup 2 (after Granger et al., 2006).*

**Scaled Experimental Models of Extension** *continued on page 43*

## Scaled Experimental Models of Extension continued from page 41

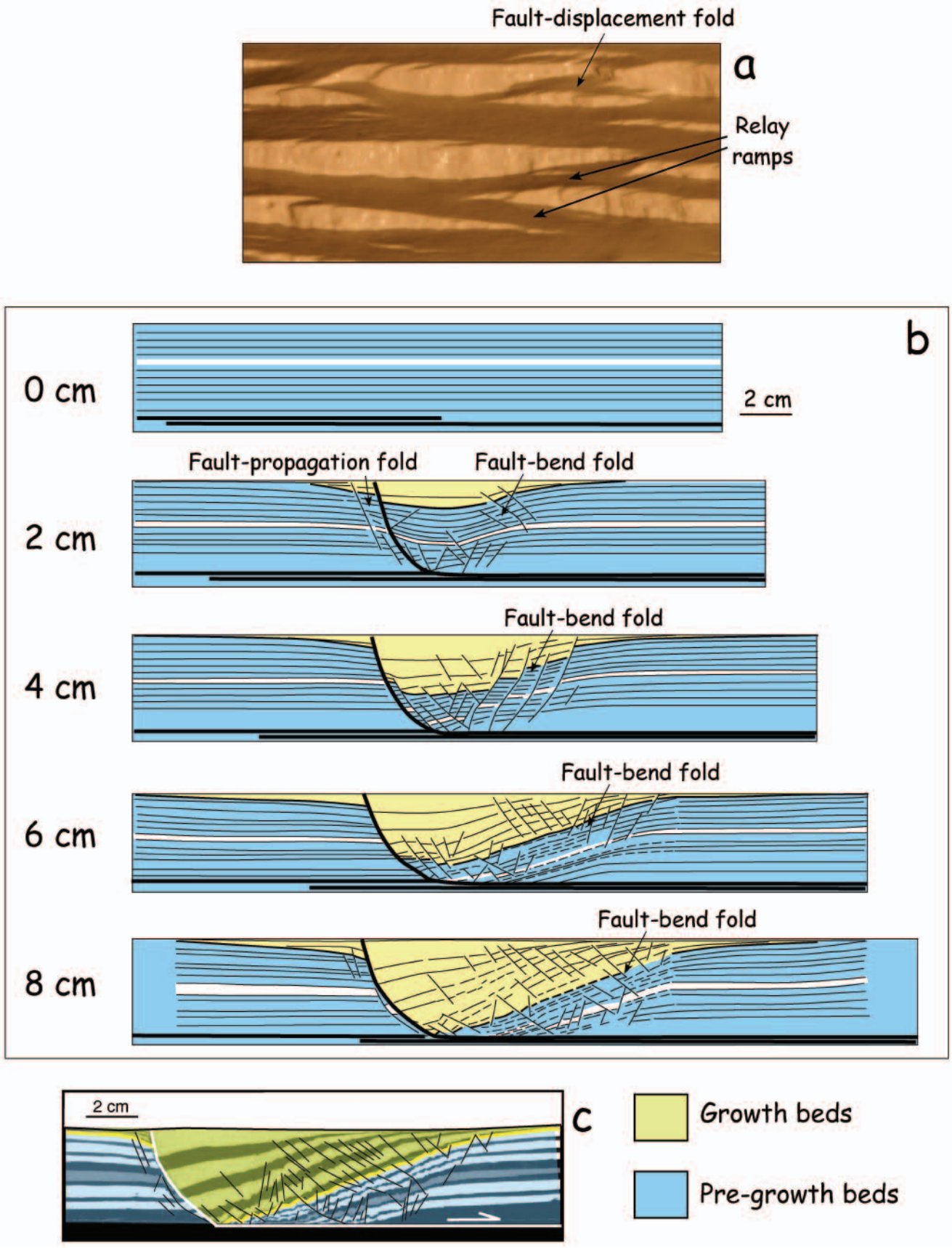



*Figure 4. Cross sections of folds in the clay models. a) Relay ramps and fault displacement folds from setup 2. b) Development of fault-bend folds (rollover folds) from setup 1 as displacement of the moving plate increases from 0 to 8 cm. c) Photograph of clay model from setup 1 after 8 cm of displacement of the moving plate.*

**Scaled Experimental Models of Extension** continued on page 45

# Scaled Experimental Models of Extension continued from page 43



the moving plate increases, the rollover fold in the clay grows wider, bedding dips increase and bedding thickness decreases (Figure 4b). Numerous minor to major normal faults accommodate the rollover folding. Fault-propagation folds also develop in the clay but not the sand. For setup 3, a major normal fault and a minor antithetic fault develop in the sand model (Figure 2c, top), whereas a fault-propagation fold develops in the identical clay model (Figure 2c, bottom). Numerous small-scale faults cut the folded beds (Figure 2c, photograph).

## Summary and discussion

Overall, fault patterns are similar in the extensional sand and clay models in that high-angle normal faults develop that strike roughly perpendicular to the extension direction. Deformation patterns, however, have several fundamental differences. Individual fault-zone widths are much greater in the sand than in the clay, reflecting the significant difference in grain size of the modeling materials (< 0.5 mm for dry sand vs. < 0.005 mm for wet clay). Most differences in the deformation patterns, however, reflect the different ductilities of the modeling materials. Normal faults are long, planar and hard-linked in the sand, whereas they are shorter, curved and soft-linked in the clay. A few large normal faults accommodate most deformation in the sand models, whereas a few large faults and numerous minor faults accommodate most deformation in the clay models. Little folding occurs in the sand models, but folds (relay ramps, fault-displacement, fault-propagation and rollover) are numerous in the clay models.

Which modeling material best replicates nature? The answer to this question depends on the ductility of the natural example at the scale of observation. The dry sand, with its low ductility, best represents rock that deforms primarily by localized faulting. Figure 5a shows an outcrop from Greece where most deformation is localized on two fault zones. The localized deformation on the normal faults resembles that in the sand model of setup 3 (Figure 2c). The wet clay, with its greater ductility, best represents rock that deforms by distributed minor and major faulting. The distributed deformation on numerous normal faults of varying size and the presence of relay ramps and fault-displacement folds in the North Sea (Figure 5b) resembles the deformation patterns in the clay model of setup 2 (Figure 4a). The undulations on the fault surfaces are similar to those on the fault surfaces in the clay models (Figure 3e). The Blackberry normal fault in the Gulf of Mexico with its rollover fold cut by numerous small-scale normal faults (Figure 5c) resembles the deformation in the clay model of setup 1 (Figures 4b, 4c). The fault-propagation folds from the Gulf of Suez (Figures 5d, 5e) resemble the fault-propagation folds from the clay models of setup 3 (Figure 3c).

Do these conclusions have implications for cross-section restoration? Restorations of cross sections from sand and clay models suggest that the assumed angle of simple shear used in many restoration programs depends on ductility (Withjack and Schlische, 2006). Specifically, the effective shear angle is similar to the dip of observed normal faults if the ductility is low. The effective shear angle, however, can differ significantly from the dip of the observed faults if the ductility is high. For example, in the sand model of setup 1, restorations show that the effective shear angle is 60°–65°, the same as the dip of the major antithetic faults (Figure 2a, top). In the clay model of setup 1, numerous minor to major normal faults (antithetic and synthetic) accommodate the hanging-wall deformation (Figure 2a, bottom). The effective shear angle (35°–50°) is considerably less than the dip of the antithetic normal faults, reflecting the combined effect of the antithetic and synthetic normal faults. ■

## Acknowledgments

This research benefited from many thought-provoking discussions with Mark Baum, Jennifer Elder Brady, Amber Granger and William Rizer. NSF grant EAR-0408878 supported some of this research.

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**Scaled Experimental Models of Extension** *continued on page 47*

## Scaled Experimental Models of Extension continued from page 45

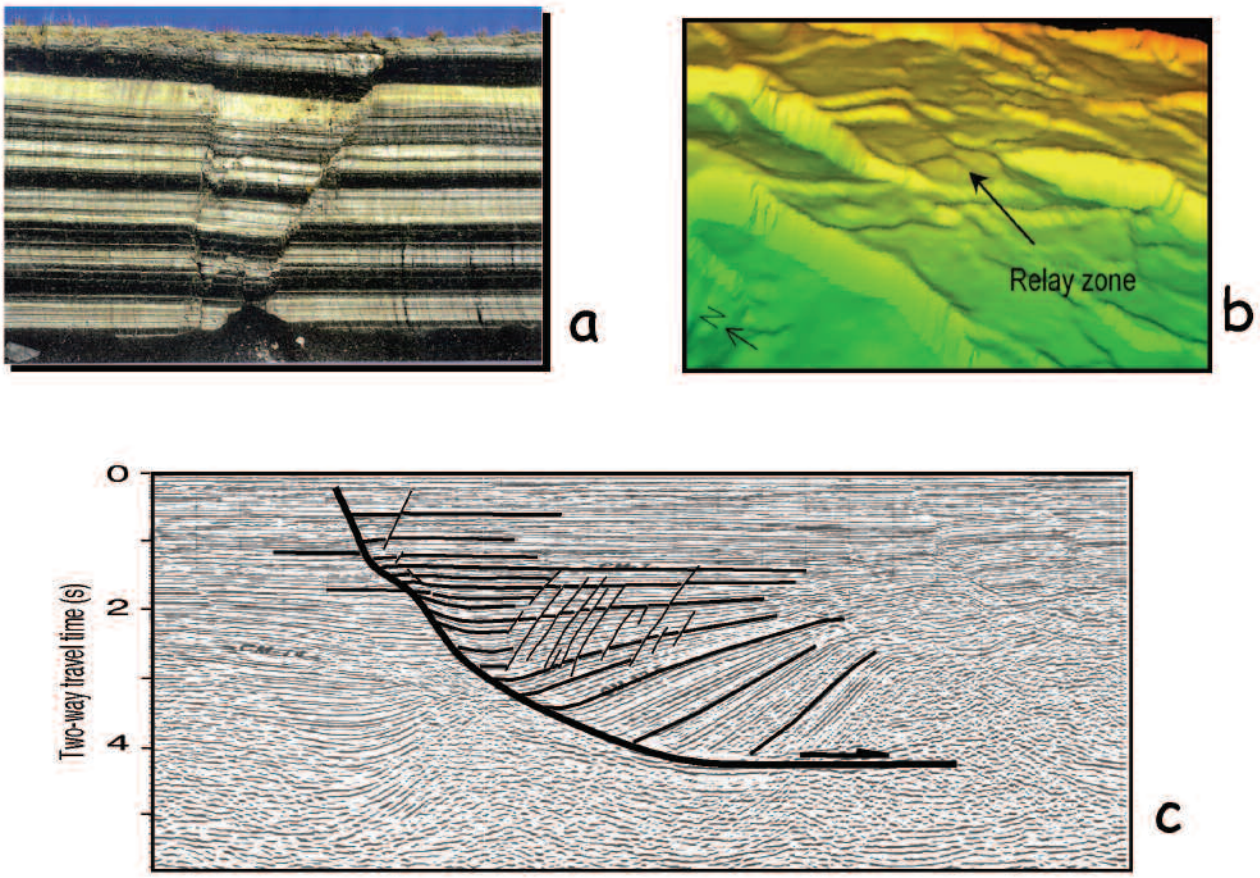


*Figure 5. Outcrop and field scale examples. a) Outcrop from Greece showing localized deformation on normal faults (photo by Jörg Negendank). b) Perspective diagram on a middle Jurassic horizon from the North Sea showing normal faults and relay ramps (from Fault Analysis Group website, http://www.fault-analysis-group.ucd.ie/, 2006). c) Seismic line showing Blackberry normal fault from Gulf of Mexico (after Bally et al., 1991; Withjack and Schlische, 2006). The rollover fold in its hanging wall is cut by numerous minor normal faults. d) Fault-propagation fold from the Gulf of Suez (after Gawthorpe et al., 1997). e) Cross section from the Gulf of Suez showing a fault-propagation fold cut by normal fault (after Patton, 1984; Withjack et al., 1990).*

**Scaled Experimental Models of Extension** *continued on page 49*

## Scaled Experimental Models of Extension continued from page 47

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**ASSOCIATION FOR WOMEN GEOSCIENTISTS • HOUSTON, TX**

# ANNOUNCEMENT OF SCHOLARSHIP

The Association for Women Geoscientists (AWG) Lone Star Rising Scholarship provides professional development funding for women in the geoscience profession who wish to resume their geoscience careers after having been out of the work force for at least 2 years.

The awards are intended to cover professional development costs, up to $500, such as enrollment in geoscience training courses or workshops, fees for certifications & licensing, conference fee & expenses, professional membership fees, or any other justifiable costs to help candidates reenter the workforce. The application due date is June 1st, 2007 and AWG membership is not required. More information can be found on our website http://awglonestartx.blogspot.com.

### AWG Mission

The Association for Women Geoscientists is an international organization devoted to enhancing the quality and level of participation of women in the geosciences and to introducing girls and young women to geoscience careers. Membership is open to all who support AWG's goals. The Lone Star Chapter was re-established in 2002. The chapter holds monthly networking dinners in and around Houston and supports the "Lone Star Rising Scholarship." ■

# Candidates for the 2007–2008 Executive Board

## HGS Now Offers Online Voting Option

The Houston Geological Society is proud to announce that beginning this year members will have two ways to cast their vote for the HGS officer candidates. Eligible members can choose to complete the paper ballot or go online and vote.

As in previous years, each member will receive a voting packet sent in the mail to the address on file with the HGS office. The voting packet will include the typical paper ballot that can be completed and returned in the mail to the HGS office. The voting packet will also include detailed instructions describing how the member can vote online in lieu of using the paper ballot. Online voting is an easy procedure where members connect to the Internet, go to the HGS Website and casts their votes for the candidates by clicking boxes on the computer screen.

The HGS Website committee and HGS Webmaster have worked with the programmers to make the online voting process efficient and easy to use. If you have suggestions for improvements or encounter any problems with the new voting process, please contact the Website Committee Chair (Bill Osten) or HGS Webmaster (Lilly Hargrave). ■

## President-Elect (two candidates)

### Kara Bennett

**Education:**
BS Geology, Florida Atlantic University
MS Geology, University of Florida

**Experience:**

| | |
|---|---|
| 2000–Present | Consulting Geologist, International and Domestic |
| 1997–2000 | Geologist, Landmark |
| 1994–1997 | Consulting Geologist, International |
| 1989–1994 | Senior Exploration Geologist, Amoco |
| 1988 | Summer Intern, Mobil |
| 1987 | Summer Intern, Amoco |
| 1982–1985 | Senior Geologist, Gulf Oil |
| 1980–1981 | Geophysicist, U.S. Geological Survey |
| 1979–1980 | Uranium Geologist, Bendix |

**Professional Affiliations:**
AAPG, HGS, Registered Texas Geologist

**Professional Awards:**

| | |
|---|---|
| 2000 | HGS President's Award |

**Professional Activities:**

| | |
|---|---|
| 2002–Present | AAPG House of Delegates |
| 2004–2005 | HGS Vice President |
| 2003–2005 | HGS Advisory Committee |
| 2004–2006 | AAPG 2006 Convention Continuing Education Chairman |

**Kara Bennett** *continued on page 56*

### Cheryl Desforges

**Education:**
MBA Finance/International Business/Decision & Information Sciences, University of Houston
MS Physical Science/Geology, University of Houston CL
BS Geology, Texas Christian University

**Experience:**

| | |
|---|---|
| 2006-Present | Sabco Oil and Gas Company |
| 2004-2006 | Consultant, Ryder Scott Company, SCA<br>Randall & Dewey, Inc.<br>Environmental Evaluation Partners, Inc., President |
| 1989-1995 | Consultant in both the Petroleum and Environmental Industries |
| 1982-1989 | J.M. Huber Corp. |
| 1979-1981 | Diamond Shamrock Corp. |
| 1977-1979 | Sonat Exploration Co. |
| 1975-1977 | Atlantic-Richfield Co. |

**Professional Affiliations:**
Licensed Professional Geoscientist, State of Texas # 2174
American Association of Petroleum Geologists - Certified Petroleum Geologist #2925
American Institute of Professional Geologists - Certified Professional Geologist #4851
Geological Society of America
Houston Geological Society

**Cheryl Desforges** *continued on page 57*

# Candidates for the 2007–2008 Executive Board *(continued)*

## Vice-President (two candidates)

### Gary W. Coburn

**Education:**
BS Geology, University of North Carolina-Wilmington 1977

**Experience:**

| | |
|---|---|
| 2006-present | Addax Petroleum- Senior Deepwater Exploration Geologist |
| 2004-2006 | Maritech Resources - Senior Geologist |
| 2003-2004 | Range Resources - Geological Consultant |
| 1997-2003 | Bell Geospace Inc - Geological Manager |
| 1995- 1996 | American Exploration - Senior Geologist |
| 1989-1995 | Tatham Offshore inc. - Vice president and Chief Geological Engineer |
| 1984-1989 | Tenneco Oil/ Chevron - Project Geologist |
| 1978-1984 | Superior Oil - Senior Geologist |

**Professional Affiliations:**
AAPG, HGS, GSH, SEG
Texas Professional Geoscientist License #1989
North Carolina Professional Geologist License # 785

**Honors and Awards:**
HGS 2006 Rising Star Award

**Professional Activities:**
2003 to present ; Co-Chair HGS Northsiders
2002 HGS Northsiders Origination Committee
Judge at numerous AAPG Conventions both poster and oral sessions
Numerous professional papers published in the AAPG, GCAGS, W. VA Oil & Gas Survey, Oil & Gas Journal and World Oil.

**Statement:**
The HGS is by far the most organized and professional group with whom I have ever been associated. The streamlining of meeting registrations and renewal of dues online has had a significant impact on the entire membership and their participation. (In fact I recently used the HGS as an example of efficient online renewal to Geologist License Board of North Carolina). As Co-Chair of the Northsiders, I am very well aware of what it takes to put on a great technical program from arranging for speakers and

**Gary W. Coburn** *continued on page 57*

### Scott Charles Sechrist

**Education:**
Geology Curriculum, Trinity University, 1970–72
BA Geography / Remote Sensing, Southwest Texas State University, 1974
BA Communication R-T-F, Stephen F. Austin State University, 1977
HCC / U of H Post Baccalaureate courses for MS Geology Program, 1986

**Experience:**

| | |
|---|---|
| 2005–Present | ConocoPhillips Company |
| 2002–2005 | Calpine Natural Gas, L.P. |
| 1999–2001 | Panaco, Inc. |
| 1998 | Subsurface Consultants at Exxon USA, Coastal Oil & Gas |
| 1997 | Earthview and Associates |
| 1985–96 | Acoustic Exploration, Inc. |
| 1981–84 | Seiscom Delta United |
| 1980 | Good Hope Refineries |
| 1978–80 | Bendix Field Engineering |

**Professional Affiliations:**
AAPG, SEG, SIPES, SPE, GSH, GCS-SPE, HGS
SIPES Certified Geologist # 2503, 1997
Texas Licensed Petroleum Geologist #4487, 2003
Texas Licensed Petroleum Geophysicist #4497, 2003

**Professional Activities:**
Geophysical Society of Houston
- 2nd VP 2000
- Technical Breakfast Chair, 1997–1999
- Electronic Communications Chair, 1997–Present

Houston Geological Society
- Director 2000–2002

SIPES Houston Chapter
- Secretary 2006
- Cont Ed Chair 2004
- Technical Program Chair 2003

**Statement:**
It is an honor to be nominated for the office of Vice President of the Houston Geological Society. The HGS is a world-class local

**Scott Charles Sechrist** *continued on pag e 57*

# Candidates for the 2007–2008 Executive Board *(continued)*

## Secretary (two candidates)

### Dianna R. Phu

**Education:**
BS Geology/Geophysics (2000), University of Houston

**Experience:**

| | |
|---|---|
| 2000–Present | Geoscientist, Geoscience Earth & Marine Services, Inc. |
| 1999–2000 | Geoscience Intern, Geoscience Earth & Marine Services, Inc. |
| 1997–1999 | Thermochronology Lab Assistant, University of Houston |

**Professional Affiliations:**
Texas Professional Geoscientist # 4237
HGS, AAPG, SEG, SEPM, GCAGS, GSA

**Professional Activities:**

| | |
|---|---|
| 2005–Present | NeoGeos Chairperson |
| 2006–Present | Administrator, HGS/NeoGeos Message Board |
| 2006–Present | HGS Website Committee |
| 2006–Present | HGS Continuing Education Committee |
| 2006–Present | OTC the Next Wave Planning Committee |
| 2006–Present | UH AAPG Student Chapter Liaison |
| 2006–Present | ECH Young Professional Liaison |
| 2005–2006 | HGS ESW Volunteer |

**Statement:**
I am honored to be considered for the office of HGS Secretary. I view the HGS as a dynamic organization with a versatile membership base that spans generations, industries and specialties. Those qualities make membership in the HGS one of the most valuable assets in any earth science-related career, even if you aren't based in Houston. Even more important than membership, however, is participation. Through my efforts with the NeoGeos I have come to realize that proactive communication is the key to effective leadership. Responsibilities of the HGS Secretary include documenting and communicating the state of the organization through interaction with the other Board members and the various committees. My focus would be to initiate and encourage proactive participation in the HGS at all levels, to the benefit of each individual and to the Society as a whole. ■

### Ianthe N. Sarrazin

**Education:**
BS Geology (1998), Cornell University

**Experience:**

| | |
|---|---|
| 2006-present | Geophysicist, Petrobras America Inc. |
| 2003-2006 | Geophysicist, Stone Energy Corp. |
| 2000-2003 | Geophysicist, Cheyenne Petroleum Company |

**Professional Affiliations:**
AAPG, SEG, HGS, GSH

**Honors and Awards:**
2005–2006 HGS Rising Star Award

**Professional Activities:**

| | |
|---|---|
| 2005–Present | HGS Northsiders Treasurer |

**Statement:**
It is with honor that I accept the invitation to run for Secretary of such a fine organization. The HGS has helped my career immensely by providing networking opportunities and accessible educational experiences at a local level.

As a Treasurer for the HGS Northsiders group, I have learned how the society runs meetings and what is required to make them a success. Effective communication is both essential and a challenge. As Secretary I will work diligently to meet that challenge and provide accurate documentation and establish lines of communication that contribute to the strength of the society as a whole. ■

# Candidates for the 2007–2008 Executive Board *(continued)*

## Treasurer-Elect (2 candidates)

*Photo not available*

### Richard J. "Rich" Germano

**Education:**
MS Geology, University of Minnesota
BS Earth and Space Sciences, SUNY/Stony Brook

**Experience:**

| | |
|---|---|
| 2004–present | Fast Energy Data LLC President |
| 1995 to 2004 | Energy Graphics, Inc. Vice President, Sales |
| 1986 to 1995 | Petroleum Information Corporation (now IHS Energy)<br>Major Accounts Manager, 1991 to 1995,<br>Technical Market Manager, 1989-1991,<br>Chief Geologist, 1986-1988. |
| 1984 to 1985 | Wainoco Oil Company District Geologist. |
| 1980 to 1984 | Superior Oil Company (now ExxonMobil), Explorationist. |
| 1978 to 1980 | Chevron USA Inc. Development Geologist. |

**Professional Affiliations:**
HGS, AAPG

**Professional Activities:**
1988 to 1992 AAPG House of Delegates

**Statement:**
I am honored to be nominated as Treasurer-elect candidate for the HGS. As the largest local geological society, the HGS has a critical role here in Houston and throughout the world. Membership funds are an important resource in fueling the society's mission. As Treasurer-elect I will collaborate to explore ways to grow these funds while maintaining accountability in their collection and expenditure. It has been a privilege to be a society member for more than 25 years and now be selected to participate further in this great organization. I look forward to being an active contributor to HGS for many years to come. ■

### John Tubb

**Education:**
BS Geology Southwestern Louisiana Institute
MS Geology University of Illinois
PhD Geology University of Illinois

**Experience:**

| | |
|---|---|
| 1996–present | Consulting Geologist, currently with Inexs |
| 1987–1996 | Japex, Exploration Manager |
| 1985–1987 | Consulting Geologist |
| 1984–1985 | WR O&G, Senior Geologist |
| 1981–1984 | Consulting Geologist |
| 1977–1981 | Michigan-Wisconsin Pipeline Company, District Manager; Vice President Exploration |
| 1969–1977 | Signal O&G-Aminoil, Senior Geologist, District Geologist, Division Development Geologist |
| 1963–1969 | Tenneco Oil Company, Geologist |

**Professional Affiliations:**
HGS, AAPG

**Professional Activities:**

| | |
|---|---|
| 1973–1975 | AAPG Delegate from LGS |
| 1974–1975 | Secretary of Lafayette Geological Society |
| 1974–1975 | Chairman Resolutions Committee for House of Delegates |
| 1983–1985 | AAPG Delegate from HGS |
| 1994–1998 | AAPG Delegate from HGS |
| 2000–present | AAPG Delegate from HGS |

**Statement:**
I have been active in HGS as an AAPG Delegate for a number of years. I would like to have the opportunity to serve in the capacity of Treasurer-Elect. ■

# Candidates for the 2007–2008 Executive Board *(continued)*

## Director (four candidates) *Vote for two candidates*

### Michael S. Benrud

**Education:**
BS Geology, Bradley University
BS Computer Science, University of Houston

**Experience:**

| | |
|---|---|
| 1989–1990 | Ensource, Development Geologist |
| 1990–2000 | UMC Petroleum, Development Geologist |
| 2000–2001 | Ocean Energy, Senior Geologist |
| 2001–2003 | Consultant |
| 2003–Present | South Bay Resources, LLC, Chief Geologist |

**Professional Affiliations:**
AAPG, HGS, SPWLA, CSPG

**Professional Activities:**
2005–Present HGS, Directory Chairman

**Statement:**
The Houston Geological Society is an incredible organization, and is one of the premier geological professional societies in the world, with around 3600 members. Every month the society offers numerous actives that promote the objectives of the society, which are

- to stimulate interest and promote advancement in the geosciences,
- to disseminate and facilitate discussion of geological information,
- to enhance professional interaction among geoscientists, and
- to aid and encourage academic training in the geosciences.

To accomplish these objectives the society relies on the hard work of volunteers participating in 47 different committees. I want to help facilitate the communication of the activities of the different committees to the HGS Board. As a member of the HGS since 1989, I want to give something back to the organization that has provided me with the opportunity to meet fellow professionals, and increase my knowledge of my profession. ■

### Alison Henning

**Education**
2005 PhD Earth Science, Rice University
1997 MA Geological Sciences, University of Texas
1994 BS Geological Sciences, University of Texas

**Experience:**

| | |
|---|---|
| 2002–present | Rice University, Lecturer |
| 2005–present | Consulting Geophysicist |
| 1998–2000 | Statoil Exploration, Geophysicist |
| 1997–1998 | 3DX Technologies, Inc., Geophysicist |

**Professional Affiliation:**
HGS, AAPG

**Professional Activities:**

| | |
|---|---|
| 2003–present | HGS Academic Liaison |
| 2001–2006 | AAPG Student Expo Committee |
| 2002–2003 | AAPG Youth Education Committee |
| 2002 | HGS Outstanding Student Award |
| 2001 | HGS Rising Star Award |
| 1999–2002 | HGS Earth Science Week Committee Co-Chair |
| 1998–2002 | Docent and Volunteer Geologist, Houston Museum of Natural Science |
| 1999 | HGS Academic Liaison |

**Statement:**
This is an exciting time to be a geoscientist in Texas! With the recent approval of Earth Science as a fourth year of high school science, more students than ever before will be exposed to the geosciences. This is a great opportunity for the HGS to share its knowledge and enthusiasm for geoscience with the local community. I am working with other dedicated HGS volunteers to determine how the HGS can have the most impact. Ideas include hosting teacher training workshops, encouraging industry geoscientists to "adopt" a local classroom, and helping the Texas Education Agency to develop the high school Earth Science curriculum.

I have been a member of the HGS for 10 years and first served as Academic Liaison in 1999. I joined with Inda Immega and Janet Combes to chair the Earth Science **Alison Henning** *continued on page 58*

# Candidates for the 2007–2008 Executive Board *(continued)*

## Director (four candidates) *Vote for two candidates*

### Richard G. Howe

**Education:**
BS Geology, Lamar University
Master of Geoscience, Texas A&M University

**Experience:**

| | |
|---|---|
| 2001–Present | Terrain Solutions, Inc., Vice President |
| 1986–2001 | Consulting Geologist |
| 1979–1986 | Columbia Gas Development Corporation, Sr. Exploration Geologist |
| 1976–1979 | W.S. Wallace & Associates, Geologist |

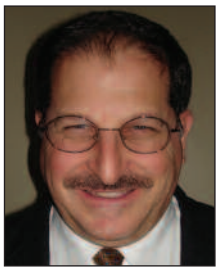
**Professional Affiliations:**
Licensed Professional Geoscientist, State of Texas #27
Certified Professional Geologist, AIPG #5191
Houston Geological Society (28-year member)
American Association of Petroleum Geologists (31-year member)
Association of Environmental & Engineering Geologists
SEPM-Society for Sedimentary Geology

**Professional Honors:**
HGS Distinguished Service Award
The HGS Richard G. Howe Summer Internship at the Houston Museum of Natural Science

**Professional Activities:**
HGS
- Field Trip Committee (1987 – 2000)
- HGS Councilor to ECH (1998-present)
- Environmental & Engineering Geology Committee (1987–present)
- Houston Science Engineering Fair Awards (2001–2006)
- Houston Museum of Natural Science Summer Intern Selection Committee (2001–2006)
- HGS/ECH Coastal Subsidence Conference
- HGS Alternative Careers Conference
- HGS Critical Siting Seminar
- HGS Geological Road Rallys

ECH-Engineering, Science, & Technology Council of Houston
- President (2004–2005)
- Vice-President (2002–2004)

**Richard G. Howe** *continued on page 58*



### Walter S. Light, Jr.

**Education:**
BSc Geology University of Texas-Austin, 1977

**Experience:**

| | |
|---|---|
| 1981–Present | Thunder Exploration, Inc., Owner/ President/Geologist |
| 1981 to 1991 | Lightning Oil Company, Vice President |
| 1979 to 1981 | JWR Exploration, Inc., Exploration Geologist |
| 1977 to 1979 | SOHIO Petroleum, Exploration Geologist |

**Professional Affiliations:**
American Association of Petroleum Geologists
Houston Geological Society
South Texas Geological Society
Corpus Christi Geological Society
Petroleum Exploration Society of Great Britain
Houston Producers' Forum
Licensed Professional Geologist, State of Texas # 4076

**Professional and Community Activities, Achievements, Presentations and Awards:**

| | |
|---|---|
| 2006–2007 | Houston Geological Society Community Service Committee Chairman. |
| 2006 | Houston Geological Society Rising Star Award—for leadership in organizing Houston Geological Society's response to Hurricane Katrina |
| 2005–2006 | Houston Geological Society Community Service Committee |
| 2005–Present | Nehemiah Neighborhood Center - Executive Board Member andVolunteer Committee Chairman |
| 1999–Present | Nehemiah Neighborhood Center Homework Tutor / Mentor |
| 1999–2006 | Co-Leader of First Presbyterian Church's Community Bridges Team (Construction Outreach) |
| 2005 | Rebuilding Together Houston–Golden Hammer Award |
| 2002 | PSI / HomeSavers–Golden Hammer Award |
| 1993 | HGS *Bulletin* Committee |

**Walter S. Light, Jr.** *continued on page 58*

# Candidates for the 2007–2008 Executive Board *(continued)*

## Editor-Elect (one candidate)

### Michael F. Forlenza

**Education:**
BA, Geology, Columbia College, Columbia University, New York, NY.
MS, Geology, University of Massachusetts, Amherst, MA.

**Experience**

| | |
|---|---|
| 1982–1985 | Exploration Geologist, Texaco International Exploration, Inc., White Plains, NY. |
| 1985–1986 | Geophysicist, Exxon International Exploration (ESSO), Houston, TX. |
| 1986–1990 | Geologist, CA Rich Consultants, Inc., Glen Cove, NY. |
| 1990–present | Senior Project Hydrogeologist, Malcolm Pirnie, Inc., Houston, TX.. |

**Professional Affiliations**
HGS, NGWA, AGWSE, Texas Professional Geoscientist, Wyoming Professional Geologist, former AAPG Member

**Statement:**
The high quality, interesting content, and visual appeal of the HGS *Bulletin* is testament to the efforts of the HGS editor, editorial board, staff, and members. I am excited to be nominated as editor-elect and look forward to working these dedicated professionals.

I will work to maintain the high quality of the *Bulletin* that the members have come to expect. I hope to facilitate the exchange of interesting ideas and thoughtful discussions on topics of interest to the society. I plan to meet as many members as possible and seek your feedback and input into making the *Bulletin* a publication that you enjoy reading and look forward to receiving. ■

*continued from page 50*

### Kara Bennett — *Candidate for President-Elect*

| | |
|---|---|
| 2004 | APPEX Continuing Education Course Organizer |
| 2000–2004 | HGS Continuing Education Committee, Chairman 2002–2004 |
| 2000–2003 | Producer of HGS videos "Legends in Wildcatting" |
| 1996–2000 | HGS Personnel Committee—Initiated and maintained Jobs Hotline Web site |
| 1998–2000 | HGS *Bulletin* Editor-Elect, Editor |

**Statement:**
As the world's largest local geological society and one of the most long-lived, the HGS serves a very useful purpose for the profession of geology through community service and by connecting geoscientists in Houston to each other both in the technical and social arenas.

We support students with scholarships, foster public education through Earth Science Week and the HMNS Volunteer Geologists programs, provide networking opportunities and excellent talks at over fifty technical meetings a year, provide reasonably priced, high-quality continuing education programs, sponsor technical events such as the PESGB/HGS Africa Symposia, publish a superb monthly Bulletin, provide one of the most consistently active, useful job-hunting web sites in the geosciences and have a wide range of social events and fundraisers. We do it all with a tiny but hardworking office staff and a large and vibrant group of volunteers.

The essential role of the HGS in connecting geoscientists to each other will become even more valuable in the future, as fewer individual geoscientists with greater responsibilities have more demands on their time and as the senior geoscientists retire. I believe it is important to reach out to a younger generation of geoscientists as those who went before reached out to us, and to mentor the geoscientists who will follow us. I believe it is valuable to work together as volunteers, and to provide the volunteers and committee chairs encouragement to be creative and find new ways to make the organization useful.

I am honored to be nominated as President-elect. In that role and as President I will encourage our Board, committees and office staff to continue the excellent work they currently do and provide the logistical and creative support to allow them to do it, always within a framework of fiscal responsibility. I will also ask our members to look into the future and volunteer to recruit and mentor the next generation. I am grateful for the opportunity to serve in such an important manner, and I will do my best to ensure that HGS remains a vigorous and useful organization long into the future. ■

# Candidates for the 2007–2008 Executive Board *(continued)*

*continued from page 50*

**Cheryl Desforges** — *Candidate for President-Elect*

Society of Exploration Geophysicist

**Honors and Awards:**

| | |
|---|---|
| 2006 | HGS February Volunteer of the Month |
| 2005 | HGS President's Award and February Volunteer of the Month |
| 1990 | Arthur J. Ehlmann Award for TCU Geology Alumni |
| 1974 | Sigma Gamma Epsilon, geology honor society, University of Houston |
| 1974 | Gayle Scott Award for the Outstanding Geology Senior, Texas Christian University |

**Professional Activities:**

| | |
|---|---|
| 2004–Present | HGS Treasurer/Treasurer-Elect |
| 2006–2007 | HGS Office Committee |
| 2005 | Co-Chairman "Coastal Subsidence, Sea-level and the Future of the Gulf Coast Conference" |
| 2004–2005 | HGS Finance Committee Chairman |
| 2003–2004 | HGS Continuing Education Committee, Chairman |
| 2002 | Volunteer Liaison Committee AAPG Convention |
| 1985–1989 | HGS Publication Sales Committee Chairman |
| 1982-1984 | AIPG Screening Committee |

**Statement:**

After I was asked to accept the nomination for President-Elect, I paused to reflect on what the HGS has meant to me, how it enhances the larger geological community and how I might further contribute to its success.

From the first monthly luncheon meeting I attended in 1975, I have appreciated the educational and networking benefits HGS brings to our local geological community. As my participation in the organization grew over the years, I gained an appreciation for how dedicated volunteers can achieve any goal they set. But during the past few years, I have gained a better understanding of how our organization functions and the power it wields in promoting the earth sciences. I have had the privilege to be involved with a number of dedicated groups of HGS volunteers, as they shape our organization for the future, enhance benefits to our professional community and make the general public aware of how geology affects everyone's daily life. As Treasurer-Elect and as Treasurer I was privileged to help continue the great progress in organizing the HGS finances started by my predecessor, Ken Nemeth. As an active participant in the HGS Office Committee, I was involved in the decision to move offices to our new location that we believe will better suit our needs for years into the future. As Joan approached retirement, I participated in the replacement search and interview committee tasked with finding our new Office Manager. As Co-Chairman of the "Subsidence" Conference I saw how the HGS could be a primary instrument for furthering public awareness of important issues. As the Continuing Education Committee Chairman, I saw how our Society could provide tangible, continuing benefits to our members.

Everyone knows that our larger geological community is becoming increasingly diverse in both the variety of individuals and the industries they represent. A large group of local geologists, particularly younger geologists and those working in industries other than the Petroleum Industry, do not recognize the benefits of participating in an organization like ours. If elected as President I hope to use my knowledge of how our organization functions and the capabilities of our volunteer members to continue growing membership by attracting more of those unaffiliated local geologists. I believe diversity will be our strength as we function as representatives of the earth sciences. I am excited about the possibility of helping the HGS continue to evolve. But no matter the election outcome, it is a tremendous honor to be asked to run for President-Elect. ■

*continued from page 51*

**Gary W. Coburn** — *Candidate for Vice-President*

working out contracts with the facility to guessing the number of people that will attend and picking up the meeting materials and projector from the HGS office. There is an incredible amount of work that goes on in the HGS behind the scenes and I am very proud to be a part of it. I wish to continue and expand upon this achievement. I feel it is imperative to get more of our members to actively participate in the HGS by seeking their help on various committees and community projects. We have the greatest concentration of professional geologists in the country. Building upon this base we can continue to grow our superb technical programs and community/school programs. I would be honored to have a part in this exciting time for the HGS. ■

*continued from page 51*

**Scott Charles Sechrist** — *Candidate for Vice-President*

society not simply due to size, but because of the dedication of its members to the highest standards of performance in the geosciences.

Maintaining this level of quality in technical presentations is the primary goal for the HGS Vice President position. Providing an interesting variety of technical presentations to our highly diverse HGS membership represents an enjoyable challenge to me.

# Candidates for the 2007–2008 Executive Board *(continued)*

Many years of active involvement in local professional societies has given me the opportunity to meet a significant number of geoscientists with substantial expertise in their specializations. Having served in equivalent positions with the Geophysical Society of Houston and the Houston Chapter of SIPES, plus three years as an HGS Director provides me with the experience necessary for this important position.

Selecting speakers for geoscientists is an exercise in understanding the interests of the audience and the range of available speakers that are capable of addressing them. Managing speaker availability, publication deadlines and audience demands for the latest information create real time challenges that I have always taken seriously.

The greatest meeting attendance occurs when highly renowned speakers revisit the techniques that enabled their achievements or when topics of current interest are presented. Ethics, Climate Debate, New Technologies and Emerging Plays are presently among the most frequently discussed topics among many HGS members.

If elected, I would continue current Vice President Andrea Reynolds' practice of providing certificates documenting HGS members attendance of Technical meetings, in fulfillment of the continuing education requirements for Texas' State Geoscience registration requirements.

I would look forward to working with the HGS Board and HGS Special Interest Groups to provide the highest possible quality of speakers for the entire HGS Membership. ■

*continued from page 54*

**Alison Henning** — *Candidate for Director*

Week Committee from 2000 to 2002. Currently, I am in my third year of service as Academic Liaison, promoting the geosciences in our schools by coordinating speakers for K–12 classrooms and organizing other outreach activities. For the last several years, I have volunteered at Evergreen cemetery, a project started under past-president Steve Levine. An article in the February bulletin describes some of our recent work there.

I would be honored to serve the HGS as a Director. If elected, I will work with the committee chairs to support the society's mission of stimulating interest in the geosciences. We have a great opportunity in front of us to make a real difference in the way geoscience is perceived in our community and to encourage young people to pursue careers in our profession! ■

*continued from page 55*

**Richard G. Howe** — *Candidate for Director*

Engineers Week Committee (2005)
ECH/Harris County Flood Control District Flooding Seminar
Houston Science Engineering Fair
President (2006)
Vice President (2005)
Houston Museum of Natural Science
Co-leader Surface Fault Field Trips
Lamar University
Advisory Committee for the Department of Earth & Space Sciences (2006–present)

**Statement:**
Whereas geology is a multi-disciplined profession that has applications in diverse industries such as petroleum, mining, environmental and engineering, geologists have not always been recognized as true professionals by the courts, governmental entities, engineering disciplines and the general public. Geologists have often been perceived as technicians and have had to compete with non-geoscientists practicing geoscience before the public.

In Texas, HGS has been a champion for the recognition of geoscientists as true professionals and has helped advance our profession through support of the Geoscience Practice Act, through sponsorship of technical and ethical courses for geoscientists and through educational outreach to the public.

Through my work on the Environmental and Engineering Geology Committee and the Engineering, Science, and Technology Council of Houston, I have endeavored to educate people about our profession and advance its recognition with the public as a viable and legitimate profession. If elected to the HGS Board, I will continue these efforts and will support HGS in its programs that enhance the stature of the geosciences in the public's eye. Additionally, I will draw upon my experience in petroleum geology, environmental geology and engineering geology to help HGS support the needs of all of its members. ■

*continued from page 55*

**Walter S. Light, Jr.** — *Candidate for Director*

| | |
|---|---|
| 1993 | HGS Monthly *Bulletin*, Exploration Highlights, Editor/Writer |
| 1992 | The Austin Chalk Producing Trend Symposium, Texas A&M, Poster Session Presenter "Austin Chalk Horizontal Borehole Study Pearsall Field, TX" |
| 1986 | People to People Petroleum Geology Delegation to People's Republic of China, Delegate and |

# Candidates for the 2007–2008 Executive Board *(continued)*

| | |
|---|---|
| | Speaker, Guangzhou, China June 16, 1986 |
| 1983 | Houston Producer's Forum, Trends Basins & Plays Seminar, Speaker "Activity- Mesozoic Trends of South Texas (Olmos, Sligo and Smackover)" |
| 1981 | Houston Producer's Forum, Founding Director |

**Statement:**
If elected as a director of the Houston Geological Society I will serve to the best of my ability. In addition to the administrative and convention responsibilities, it is also the responsibility of the directors to inspire and equip our society's members by providing educational, professional, social and community service opportunities. ■

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# Warren L. and Florence W. Calvert Memorial Scholarship Fund

The Warren L. and Florence W. Calvert Memorial Scholarship Fund provides scholarships to US citizens who are graduate students majoring in the earth sciences. Each year half of the earnings of monies invested in the fund is paid out in scholarships, while the remaining half is added to the corpus of the fund. This growth factor, along with the donations from individual HGS members, allows the fund to award larger scholarships each year to meet, at least in part, the increasing costs of a college education. For the current year, the fund awarded $3200 scholarships to four exceptional students.

The HGS and the Memorial Scholarship Fund Board gratefully acknowledge the following contributions to the Fund in 2006. The three categories of contributions are Patron ($500 or more), Donor ($100 to $500) and Contributor (less than $100). ■

## Patrons

Angela Blumstein
Eugene Gibson(in memory of Elmer Dobbins)
Paul F Hoffman

## Donors

Richard S. Bishop
James Ragsdale
Zinn Petroleum Company

## Contributors

Deborah Ajakaiye
Leonard Atkins
Auburn Energy
Garnet Dow
John E. Frost
Sherry Graham
Tom Hail
Henry A. Hill
Ann King
Robert Kraye
Lakewood Production LLC
Stephen D. Levine
V.H. Sholl
Hubert Tett
Tidewater Environmental Services, Inc.

# Government Update

*by* ***Henry M. Wise, P.G.*** *and* ***Arlin Howles, P.G.***

### Railroad Commission of Texas Rule Amendments

The Railroad Commission of Texas (RRC) adopts amendments relating to Commission Access to Properties; Application To Drill, Deepen, Reenter or Plug Back; Plugging; Use of Common Storage; Scrubber Oil and Skim Hydrocarbons; Oil, Gas or Geothermal Resource Operator's Reports; and Commission Oil and Gas Forms, Applications and Filing Requirements, with one change to the versions published in the November 10, 2006 issue of the *Texas Register* (31 TexReg 9175). The only change is in the table in §3.80, where the revision date for Forms L-1 and ST-1 is changed to "1/07" to state the effective date of these amendments.

The RRC adopts the amendments to delete references to old Forms P-1 and P-2, which have been replaced with Form PR, Monthly Production Report. The amendment in §3.2 corrects a grammatical error, and an amendment at the end of §3.58(b) adds the wording "if requested by the transporter," which matches existing wording on the form. No substantive or procedural changes were proposed.

The RRC amends Table 1 in §3.80 to reflect changes to Form L-1, Electric Log Status Report, pursuant to recent amendments to §3.16, relating to Log and Completion or Plugging Report. The changes on Form L-1 replace language from §3.16 currently on the back of the form with the amended §3.16 language, which became effective on January 30, 2006. The RRC also amends the instructions on Form ST-1, Application for Texas Severance Tax Incentive Certification, to replace an obsolete reference to federal regulations with a reference to 16 TAC §3.101, relating to Certification for Severance Tax Exemption or Reduction for Gas Produced from High-Cost Gas Wells (Statewide Rule 101), to clarify dates associated with tax exemptions as opposed to tax reductions for high-cost gas and to change a reference in paragraph 2 from "well gas" to "gas well gas." In the rows for Forms L-1 and ST-1 in the table, the adopted revision date is shown as "1/07." In addition, the RRC adopts some minor cleanup changes in the rows for Forms H-1, H-1A, W-1 and W-14 to delete an old effective date and on the row for Form PR to delete the statement that it is a new form.

The RRC adopts amendments to §3.95, relating to Underground Storage of Liquid or Liquefied Hydrocarbons in Salt Formations, and §3.97, relating to Underground Storage of Gas in Salt Formations, with changes to the versions published in the July 21, 2006, issue of the *Texas Register* (31 TexReg 5723). The amendments are consistent with the RRC's wish to further the goals of safety and the prevention and control of pollution.

The RRC also adopts these amendments to reduce the possibility of explosion and fire at such facilities and enhance their safety in light of the gas release and fire at the Moss Bluff Hub Partners LP natural gas storage facility and incidents at several liquid hydrocarbon storage facilities. After considering the findings of the investigation of these incidents, the RRC determined that new safety requirements were necessary and, on December 7, 2004, directed staff to initiate rulemaking to establish such requirements. In January 2005, staff sent a questionnaire to all operators of underground hydrocarbon storage facilities to gather additional information concerning the current status of construction, maintenance, operations and record keeping. In addition, in May 2005, staff held a workshop to review operator responses from the questionnaire and to gather input from affected operators to evaluate the advisability, cost and effectiveness of potential new safety regulations. The RRC also published on its website a draft of the proposed amendments for informal comment. Staff used the input from these forums to draft the original proposed amendments and incorporate new requirements for integrity management of surface piping, location of emergency shutdown valves, fire suppression capabilities, data acquisition and record retention.

For more information on these adopted rules go to http://www.sos.state.tx.us/texreg/sos/adopted/16.ECONOMIC%20REGULATION.html#30

### TCEQ Website Updated

As you may know, back in September 2005 the Texas Commission on Environmental Quality (TCEQ) revised and reorganized the agency's web pages and changed the URLs from www.tnrcc.state.tx.us to www.tceq.state.tx.us. At that time the TNRCC pages were replaced with redirect pages that provided the new URLs and redirected folks to the correct TCEQ page. Last week the agency completed the transition to the TCEQ domain by removing the TNRCC pages, so if you are still trying to access those pages you will now receive an error message or be directed to the agency's home page. In general, the portion of all addresses that contain "tnrcc" was replaced with "tceq".To help you locate the Texas Risk Reduction Program (TRRP) pages, here are links to the main TRRP pages:

main TRRP web page:
http://www.tceq.state.tx.us/remediation/trrp/index.html
TRRP: rule: \http://www.tceq.state.tx.us/remediation/trrp/trrprule.html
TRRP protective concentration levels (PCLs):
http://www.tceq.state.tx.us/remediation/trrp/trrppcls.html
TRRP guidance and forms:
http://www.tceq.state.tx.us/remediation/trrp/guidance.html
Ecological risk assessment:
http://www.tceq.state.tx.us/remediation/eco/eco.html

**Government Update** *continued on page 63*

# Government Update continued from page 61



### New TCEQ PST Rules Being Formulated

The TCEQ is preparing draft rules and processes to deal with the Federal Energy Bill requirements. The new rules may require every petroleum storage tank (PST) site to be inspected once a year by a third-party inspector, rather than the current seven-year interval by the TCEQ. This was a possibility in 1999–2001, when the "self-certification form" was created and implemented, but many large company PST owners objected to the requirement for third-party inspection.

The Energy bill requires new underground storage tank (UST) systems to meet one of two criteria:

1. the tank manufacturer and the tank system installer have to show proof of financial responsibility, so that their insurance takes on the cost of addressing a release from that new system (which may be a single-walled system), or
2. a new UST system within 1,000 feet of community water system or potable water well must have secondary containment.

### Texas Attorney General's Groundwater Opinion

The Texas Attorney General's Office has issued the following opinion (Opinion No. GA-0498) on groundwater withdrawal permit amounts from the Edwards Aquifer:

Whether the Edwards Aquifer Authority may reduce groundwater withdrawal permit amounts for certain permit holders below the amount specified in section 1.16(e) of the Authority's enabling act when, if all permitted amounts are withdrawn, over 450,000 acre-feet of water will be withdrawn from the aquifer in a calendar year (RQ-0469-GA)

**Summary**

The Texas Legislature has not authorized the Edwards Aquifer Authority to reduce the withdrawal rights of irrigation users and averagers, who have received permits under section 1.16(e), sentences 4 and 5 of the Authority's enabling act. See Act of May 30, 1993, 73d Leg., R.S., ch. 626, §1.16(e), 1993 Tex. Gen. Laws 2350, 2361. The Legislature also has not authorized the Authority to issue interruptible junior withdrawal rights.

The complete opinion information can be found at http://www.sos.state.tx.us/texreg/sos/attorney-general/attorney-general.html#4

AGI Government Affairs Monthly Review (January 2007)

### The President's Fiscal Year 2008 Budget Request

President George W. Bush released the fiscal year 2008 budget request on February 5, 2007. Within the $2.9 trillion budget request, the President stated a strong commitment to observing, protecting and managing Earth resources and developing alternative energy resources.

For Earth resources, the President referred to a quartet of science agencies—the U.S. Geological Survey, National Aeronautics and Space Administration (NASA), National Science Foundation (NSF) and National Oceanic and Atmospheric Administration (NOAA)—to continue integrated programs to understand Earth processes. Highlights from the White House budget summaries include:

1. $1.6 billion to develop new sensors and conduct research that will expand scientific understanding of the Earth system.
2. Over $800 million to improve weather forecasting capabilities by developing and acquiring geostationary and polar-orbiting weather satellites and unmanned aircraft systems to improve forecasting and our understanding of the climate.
3. Tsunami Warning and Mitigation System: An additional $2 million to strengthen tsunami detection and warning capabilities.
4. The Asia-Pacific Partnership (APP): Works with international partners Australia, China, India, Japan and South Korea to promote U.S. and partner exports in the field of clean energy and environmental goods and services.
5. Ocean Action Plan: Protecting ocean and coastal resources with $143 million in new projects to advance ocean science ($80 million), protect and restore sensitive coastal areas ($38 million) and ensure sustainable use of ocean resources ($25 million).

For Energy resources, the President promoted his Advanced Energy Initiative, which was first introduced in the President's 2006 State of the Union Address last year. Highlights from the White House budget summaries include:

1. Coal Research Initiative: $385 million to complete the President's commitment to invest $2 billion over 10 years—three years ahead of schedule—to develop technologies to reduce air emissions while providing domestically secure, cost-efficient electricity from America's huge coal reserve.
2. FutureGen Project: $108 million toward construction of a nearly emissions-free coal plant that captures and stores carbon dioxide rather than releasing it into the atmosphere.
3. Solar America Initiative: $148 million toward the goal of making solar technology cost competitive with conventional electricity by 2025.
4. Biofuels Initiative: $179 million to research the production of cellulosic ethanol from corn and to make other organic materials available as a competitive energy alternative by 2012.
5. Hydrogen Fuel Initiative: $309 million will complete the President's five-year, $1.2 billion commitment to support the development of commercially viable hydrogen technologies and fuel cell vehicles by 2020.
6. Nuclear Power 2010: $114 million—more than double the funding in the 2007

**Government Update** continued on page 65

# International Oil Conference and Exhibition

## Veracruz, Mexico, 28–30 June 2007

The International Oil Conference and Exhibition in Mexico is being organized by CIPM, AIPM, AMGE, AMGP, and SPE. These Societies welcome your paper proposal submission to this, their second collaboration for an exciting event in Veracruz, Mexico, 28–30 June 2007.

**ORGANIZERS**

CIPM - Colegio de Ingenieros Petroleros de México
AIPM - Asociación de Ingenieros Petroleros de México
AMGE - Asociación Mexicana de Geofísicos de Exploración
AMGP - Asociación Mexicana de Geólogos Petroleros
SPE - Society of Petroleum Engineers

This three-day event will offer over 200 technical papers and will address the topics listed below.

- Deepwater Development and Production Issues
- Field Development of Heavy and Extra-Heavy Fields
- Characterization and Production Optimization of Turbidite Reservoirs
- IOR/EOR, Optimal Well Placement, Data Mining and Water Management Issues in Mature Fields
- Reservoir Engineering of Fractured Reservoirs

Rodolfo Camacho Velázquez, Program Committee Chairperson, invites you to submit a paper proposal online at http://manuscripts.spe.org/ams/cgi-bin/main.plex.

**The submission deadline is 12 January 2007.**

## Government Update continued from page 63

Budget—toward this $1.1 billion government/private sector partnership to license new reactors and for private industry to obtain licenses for new designs that could result in new power plants ordered by 2009 and operating by 2014.

7. Global Nuclear Energy Partnership: $395 million to continue strong support for engineering and design of advanced reactors and new nuclear waste recycling approaches with the potential to reduce the toxicity and volume of nuclear waste that requires disposal in a permanent repository. Solving the nuclear waste issue paves the way for expanding the safe use of nuclear power around the world and at home, promotes nuclear nonproliferation and resolves nuclear waste disposal issues through an international framework.
8. Advanced Battery Research: $42 million to accelerate research on advanced battery technologies for "plug-in" hybrid vehicles that can be recharged at night.

The President requests a total budget for fiscal year 2008 for the following programs that fund Earth sciences, with percentage increase or decrease compared to the fiscal year 2007 budget request in parentheses:

Department of Energy: Office of Science: $4.4 billion (+7.2 percent)
Office of Fossil Energy: $863 million (+33 percent)
Office of Environmental Management: $5.6 billion (–3 percent)
Office of Nuclear Energy: $875 million (+38.2 percent)
Office of Civilian Nuclear Waste Management (includes the Yucca Mountain Geologic Waste Repository: $494.5 million (–9.2 percent)
National Science Foundation (NSF): $6.43 billion (+6.8 percent)
U.S. Geological Survey: $975 million (+3 percent)*
National Oceanic and Atmospheric Administration (NOAA): $3.8 billion (+3.4 percent)
National Aeronautics and Space Administration (NASA): $17.3 billion (+3 percent)

*The President's fiscal year 2007 budget request for the U.S. Geological Survey included a $22 million reduction in the Mineral Resources Program and the percent change for fiscal year 2008 assumes this reduction will take affect for fiscal year 2007. However, as indicated in the previous summary of the continuing fiscal year 2007 budget deliberations, the House has voted to restore funding for the Mineral Resources Program, so the final difference in the USGS presidential request may amount to as little as less than a one percent increase overall.

More information about the federal research and development budget for fiscal year 2008 is available at the American Association for the Advancement of Science: http://www.aaas.org/spp/rd/index.shtml

### Repeal of Oil and Gas Tax Incentives

On January 18, 2007, the House passed the Creating Long-Term Energy Alternatives for the Nation Act of 2007, or the CLEAN Energy Act of 2007 (H.R.6), in a 264 to 163 vote. Part of Congress's first 100 hours, this legislation is designed to reduce the nation's dependency on foreign oil by investing in clean, renewable and alternative energy resources.

The bill, which has yet to pass the Senate, would amend the Energy Policy Act of 2005 to repeal tax incentives for domestic oil and natural gas production. It would also require companies to renegotiate 1998 and 1999 leases in the Gulf of Mexico that lack price thresholds triggering royalty payments. According to a Platts Inside Energy article, Democrats have estimated that the value of the bill to federal coffers would be about $14 billion. This money would be directed to a "strategic energy efficiency and renewable energy reserve," which would be made available to "offset the cost of subsequent legislation" geared toward the research and development of clean renewable energy technologies.

Representative Ed Markey (D-MA) said, "We will begin to move in a new, clean direction on energy and put an end to the free ride that big oil has had under the Bush Administration and this bill is a beginning. It is the beginning of a change in direction, away from subsidizing an industry that doesn't need extra financial incentives, and towards the technologies that do need a helping hand."

The bill, however, does not have widespread support. Although 36 Republicans voted in favor of H.R.6 in the House, it is expected to encounter significant opposition from the rest of the Republican Party. Representative Cliff Stearns (R-FL) has voiced his opposition to the bill, saying it "will raise energy prices for American consumers, stifle domestic energy production, and increase our dependence on foreign sources of energy."

### Climate Change in Congress

The new Democratic majority of the 110th Congress has made climate change a major issue in their first month of work. Democrats have formed new committees, there have been several hearings on climate change and many new bills on climate change have been introduced.

On January 30, the House and Senate held high-profile hearings on climate change. The House Oversight and Government Reform Committee held a hearing on the political influence on government climate scientists on January 30, 2007, and received frank testimony about censorship, political editing of scientific results in government reports, cherry-picking science to suit political agendas and the intermixing of science and policy. The Senate Environment and **Government Update** continued on page 67

# Government Update continued from page 65



Public Works Committee held a hearing titled "Senators' Perspectives on Global Warming" and 33 senators offered their viewpoints on the science and whether to consider policy action. The testimony and web cast archives of both hearings are available at the committees' web sites.

In addition, a bevy of bills have been introduced to directly or indirectly try to reduce greenhouse gas emissions in the U.S. For the most part, the new bills would take small and specific steps to reduce emissions. Possible steps include imposing an excise tax on non-alternative fuel vehicles, improving vehicle fuel efficiency standards, amending the Clean Air Act to regulate carbon dioxide or to promote alternative fuel use, and developing a market-based cap and trade system for carbon emissions.

### President's State of the Union Addresses Energy and Climate

In his seventh State of the Union Address, President Bush presented the nation with an ambitious new energy plan that focuses on increasing fuel economy and alternative fuel availability, stating that the nation's dependency on foreign oil "leaves us more vulnerable to hostile regimes and to terrorists who could . . . do great harm to our economy." Coining a new catch phrase, President Bush urged Americans to "reduce gasoline usage in the United States by 20 percent in the next ten years." Such a reduction would, the Administration claims, allow the United States to cut total imports by about three-quarters of the oil now imported from the Middle East.

Achieving the President's "twenty in ten" goal, however, demands a dramatic increase in the availability of alternative energy sources. The President challenged lawmakers and private industry to replace 15 percent of U.S. gasoline consumption with alternative fuels by 2017. "It is in our vital interest to diversify America's energy supply, and the way forward is through technology," he said. He also asked Congress to reform Corporate Average Fuel Economy (CAFE) standards for cars and to extend the current light truck rule, which would reduce the projected annual gasoline use by 20 percent.

The President also asked Congress to double the current capacity of the Strategic Petroleum Reserve to 1.5 billion barrels by 2027, a move that would provide approximately 97 days of net oil import protection. And in a historic break from his past reluctance to acknowledge climate change pressures, the President asserted that his energy plan will "help us to confront the serious challenge of global climate change."

In his rebuttal, Senator Jim Webb (D-VA) noted that "this is the seventh time the president has mentioned energy independence in his state of the union message, but for the first time this exchange is taking place in a Congress led by the Democratic Party. We are looking for affirmative solutions that will strengthen our nation by freeing us from energy independence on foreign oil, and spurring a wave of entrepreneurial growth in the form of alternative energy programs." In their joint statement, Senator Reid and Speaker Pelosi commended the President's goals for energy independence and commented, "We now must get straight to work on a real national energy policy."

### Research and Development to Meet Future Energy Needs

The Government Accountability Office (GAO) published a 73-page report on "Key Challenges Remain for Developing and Deploying Advanced Energy Technologies to Meet Future Needs" in December 2006 and the report was posted online in January. The summary starts with a very stark historical budget fact "DOE's total budget authority for energy R&D dropped by over 85 percent (in real terms) from 1978 to 2005, peaking in the late 1970s but falling sharply when oil prices returned to lower levels in the mid-1980s."

The GAO examined the (1) R&D funding trends and strategies for developing advanced energy technologies, (2) key barriers to developing and deploying advanced energy technologies and (3) efforts of the states and six selected countries to develop and deploy advanced energy technologies. The GAO also spoke with DOE officials and scientists and stakeholders outside of DOE. The report concludes that Congress should consider stimulating a more diversified energy portfolio by focusing R&D funding on advanced energy technologies.

The full report is available online as a pdf at http://www.gao.gov/cgi-bin/getrpt?GAO-07-106

### USGS Reports on Nation's Mineral Production

The U.S. Geological Survey released a report on the value of U.S. non-fuel mine production in 2005. Production rose by 18 percent from $54.6 billion in 2005 to $64.4 billion in 2006. Demand for metals and industrial minerals in the U.S., China and other countries remains high and is keeping prices high.

The estimated total value of domestically processed non-fuel mineral materials was about $542 billion in 2006 compared with $493 billion in 2005. The report includes events, trends and outlooks for about 90 mineral commodities.

"Mineral Commodity Summaries 2007" is available on the USGS Web site at http://minerals.usgs.gov/minerals/pubs/mcs/.

### NRC Report on Earth-Observing Priorities

In January, the National **Government Update** continued on page 69

## Government Update continued from page 67

Research Council (NRC) released a report titled "Earth Science and Applications from Space: National Imperatives for the Next Decade and Beyond (2007)". The report was requested by NASA, NOAA and the USGS to generate consensus among the Earth and environmental sciences community regarding space-based mission priorities to understand the Earth system over the next decade. Over 100 Earth scientists provided input for the report and they concluded that the U.S. government needs to fund about 17 new Earth observing missions over the next decade.

Unfortunately, as the report notes the annual budget for Earth science within NASA is about $500 million less (in 2006 dollars) than in 2000. NASA has been forced to reduce funding for critical Earth observing missions and the number of instruments on NASA missions will fall by 40 percent by 2010 if additional funding is not provided.

The report recommends increasing funding for Earth observations and spending about $3 billion annually to achieve national priorities with regards to a better understanding of the Earth system. The report provides a prioritized list of recommendations regarding which specific instruments and/or missions to fund and how to distribute the funding over the next decade.

The NRC report is available online as a pdf at http://www.nap.edu/catalog/11820.html

### Key Federal Register Notices

**EPA:** The EPA is proposing amendments to the General Provisions to the national emission standards for hazardous air pollutants (NESHAP). The proposed amendments provide that a major source may become an area source at any time by limiting its potential to emit hazardous air pollutants (HAP) to below the major source thresholds of 10 tons per year (tpy) of any single HAP or 25 tpy of any combination of HAP. [*Federal Register*: January 3, 2007 (Volume 72, Number 1)] ■

# *Remember To Vote*

This year HGS will present all members the option to vote online for the Board Candidates of their choice. We encourage each of you to try voting online. There will be paper ballots mailed in April, so those who prefer the old method will have that option. At the time this *Bulletin* went to Print, details of the voting procedure were still being ironed out. Check with the HGS Web site for further details. But, whether you vote online or by mail-in ballot,

# VOTE

## GCAGS Soliciting Suggestions for Session Topics

The GCAGS Annual Meeting will be held in Houston, Texas, on October 13 and 14 at the George R. Brown Convention Center.

At this time we are soliciting suggestions for session topics in the technical program. The technical format for the 2008 meeting will be extended abstracts similar to SEG (go to www.seg.org to look at the example in the abstract kit). With this format, presenters in each session will have the opportunity to leave a documented record of their presentations that includes figures and references, and not simply be constrained to a 250 word abstract.

This is an exciting opportunity to assemble sessions that leave a documented record of the latest ideas, concepts, trends and challenges facing geoscientists in Gulf Coast.

Please contact the technical program chair Art Donovan by April 15, 2007 if you have a suggestion for a session topic and if you have suggestions for session chairs (yourself or others), contact Art at: Art.Donovan@bp.com or 281-850-4312.

# Application to Become a Member of the Houston Geological Society

*Qualifications for Active Membership*

1) Have a degree in geology or an allied geoscience from an accredited college or university; or
2) Have a degree in science or engineering from an accredited college or university and have been engaged in the professional study or practice of earth science for at least five (5) years.

*Qualifications for Associate Membership (including students)*

1) Be involved in the application of the earth or allied sciences.
2) Be a full-time student enrolled in geology or in the related sciences.

***Annual Dues Expire Each June 30. (Late renewals – $5 re-instatement fee)***

***Annual dues are $24.00; full-time students and emeritus members pay $12.00.***

Mail this application and payment to:

*Houston Geological Society*

*14811 St. Mary's Lane, Suite 250 • Houston, TX 77079-2916*

Telephone: 713-463-9476 Fax: 281-679-5504

Payment method:

☐ Check, ☐ VISA, ☐ MasterCard, ☐ American Express, ☐ Discover

Card # _____

Expiration Date: _____ Card I.D. _____

*(Card I.D. – 3 or 4 digit number on front or back of card )*

***To the Executive Board:*** I hereby apply for ❑ Active or ❑ Associate membership in the Houston Geological Society and pledge to abide by its Constitution and Bylaws. ❑ Check here if a full-time student.

*Name:* _____

*Address:* _____

_____

*Home Phone:* _____ *Spouse's Name:* _____

*Email:* _____

*Job Title:* _____

*Company:* _____

*Company Address:* _____

_____

*Work Phone:* _____ *Fax Number:* _____

*Circle Preferred Mailing Address:* Home Office

*Professional Affiliations:*

❑ AAPG member No.: _____

*Professional Interest:*

❑ Environmental Geology

❑ International E&P

❑ North American E&P (other than Gulf Coast)

❑ Gulf Coast E&P (onshore & offshore)

*School* _____

*Degree* _____ *Major* _____ *Year* _____

*School* _____

*Degree* _____ *Major* _____ *Year* _____

*School* _____

*Degree* _____ *Major* _____ *Year* _____

*Earth Science Work Experience* _____

_____

_____

*Applicant's Signature* _____ *Date* _____

Endorsement by HGS member (not required if active AAPG member)

*Name:* _____

*Signature* _____ *Date* _____

*Membership Chairman* _____ *HGS Secretary* _____

rev. 3/13/2007

*As a HGA member you are invited to join*

# GeoWives

**2006–2007 dues are $7.50**

make check payable to *GeoWives* and mail to:

Sara Nan Grubb

11212 Memorial Drive • Houston, Texas 77024

*Please provide the following*

Name: _____

Sreet Address: _____

_____

City/State/Zip: _____

Telephone: _____

email: _____

I will help plan a GeoWives activity ☐

I will serve on a committee ☐

Notification / Phone Committee ☐

Courtesy / Hostess ☐

My home is available for a meeting ☐

# HGA and GeoWives **News**

*by* ***Donna Parrish, 3rd Vice President***

### Attendance Makes Blockbuster Event

*The Gathering*

The debut of HPAC multiple auxiliaries joint event set the standards for all future events. Nearly 300 ladies came out for a luncheon and fashion show by Talbots at the Junior League on Briar Oaks Lane. The models represented each of the auxiliaries. A collection of casual and travel wear appealed to everyone attending modern activities in our current casual culture.

*Model–Sara Nan Grubb*

The "Book Swap" rotated well loved books throughout the auxiliaries. Our greatest compliments go to Linnie Edwards and her committee. Organizing and coordinating 4 different groups of individuals to work as one was a heroic undertaking. Next year HPAC will attempt 3 joint ventures. May each event equal Linnie's.

*You are invited to become a member of*

# Houston Geological Auxiliary

**2006–2007 dues are $20.00**

**Due by July 15th 2006**

Mail dues payment along wtih the completed yearbook information to

**Sally Blackhall**, 8714 Sterling Gate Circle, Spring, Texas 77379

## YEARBOOK INFORMATION

| Last Name | First Name | Name Tag |
|---|---|---|
| Spouse Name | Name Tag | HGS Members Company |
| Home Phone | Business Phone | Business Fax |
| Street Address | City | Zip |
| Email Address | Home Fax | |

Please choose a Committee Assignment

| | | | |
|---|---|---|---|
| ☐ Fall Event | ☐ Yearbook | ☐ SOS | ☐ Membership |
| ☐ Christmas Event | ☐ Spring Event | ☐ Notification | ☐ Game Day |
| | ☐ May Luncheon | ☐ Courtesy | |

*Model–Lynn Schoenberger*

*Model–Susan Bell*

As our year winds down look for your invitations to the final luncheon of our year.

Good bye to Joan, our decade long contact at the HGS and GSH office. Her familiar voice will be missed. During the transition, Sally's Sweethearts and Geophysical Auxiliary members helped cover office hours and assisted Lilly while interviews were being conducted. A new move to St. Mary's Lane, changing staff and unpacking boxes, are all challenges. Lilly is a pro and the only one with the historical perspective to know "everything". Good Luck Lilly. Special thanks to Edie Bishop, Marilyn Burger, Kathi Hilterman, Barbara Thigpen, Donna Parrish, Lynn Schoenberger, Sally Blackhall and all the gals who helped out. Volunteers are priceless as are all of you who respond when asked. ■

## GeoWives **News**

*by* ***Geo Wives President, SaraNan Grubb***

### Annual Meeting/Installation of Officers Luncheon

Our Annual Meeting/Installation of Officers Luncheon will be May 2, 2007 at the Houston Racquet Club. Make your plans to attend. Edie Bishop and Sholeh Huber will co-chair. The entertainment will be by My Friends and I. They will present "Southern Belles Gone Bad". Don't miss this program because I hear they are fabulous. What a great way to end a good year. ■

HOUSTON GEOLOGICAL SOCIETY
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