HGS Bulletin
Houston Geological Society
Volume 49 Number 5
January 2007

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Pre-and Post-Drill

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The Bulletin
Houston Geological Society

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About the Cover: The rig depicted on the cover is from Mars Field, Mississippi Canyon Gulf of Mexico courtesy of Shell Exploration and Production Company.

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by ***Steve Brachman***

World Awash in Oil?

I sincerely hope that the holiday season was kind to everyone, full of joy, good health, and happiness. I know that many folks make resolutions about how they will change and what they will do differently over the coming new year. Frankly, I've never been a subscriber to resolutions, since I hate breaking promises, especially to myself. On the other hand, I can promise a couple of changes in store for the membership of the HGS in 2007. First, the Society is moving offices. We are finally getting our permanent staff, Joan and Lilly, away from the construction at I-10 and the Beltway, and moving westward to 14811 Saint Mary's Lane. This address is a stone's throw southwest of I-10 and Dairy Ashford. Linda Sternbach and Cheryl Desforges, and Dave Agarwal with our sister society, the GSH, have done a lot of hard work to make this transition occur as smoothly as possible.

Second, a ballot resolution has been mailed to you that would amend the Society's by-laws to allow for online voting. Approval of this change would go a long way towards making it easier for you to participate more directly in the running of the HGS. Though it sounds rather straightforward, making online voting a reality involved considerable time and effort on the part of Bill Osten, Don Scherer and Erik Mason. We plan to make online voting available in two years, but if the stars are properly aligned, it may be implemented in time for the 2007 Board elections.

In my previous President's letters, I have attempted to address and inform on issues affecting geoscientists in general and HGS members in particular. However, I had a nice chuckle over a recent article in US News and World Report online (1) that I think may interest many of you. The article discussed a report published by Pulitzer Prize-winning author Dr. Daniel Yergin and his Cambridge Energy Research Associates (CERA). What caught my attention, though, was not the report but the reaction. The CERA study states that the world may not actually run out of oil any time soon or, in other words, "Peak Oil" has not yet arrived. I naively thought that many would be cheered by CERA's pronouncement; however this was not the case. Not only was there widespread incredulity over the study's findings, a group named the "Congressional Peak Oil Caucus" called the study an "outrage" and "a major disservice to our country…"

…the world may not run out of oil any time soon… Peak Oil has not arrived

What is the Congressional Peak Oil Caucus and why do they think the CERA report is an outrage? The Caucus is a bipartisan group of Congressmen started by Representatives Tom Udall (D-NM) and Roscoe Bartlett (R-MD). Their stated purpose is to "to educate Congress and the public about the inevitable crisis we face regarding our future oil supply..." and to "establish an energy project with the magnitude, creativity and sense of urgency that was incorporated in the "Man on the Moon" project to address the inevitable challenges of "Peak Oil"" (2). Now, I do not know whether or not we face the "inevitable challenges of Peak Oil". I do know, however, that a study like Dr. Yergin's, which could be used to repudiate "Peak Oil", can be perceived as undercutting those contemplating a huge transfer of wealth for a national energy project of the magnitude envisioned by the Caucus. Thus their reason behind labeling of CERA's report as "a major disservice to our country".

Clearly the national energy project initiative will move forward. Who is going to pay for it? The same Congressional group is stumping to repeal items in the 2005 energy bill they have labeled "industry subsidies." This includes such audacious handouts as the change in tax treatment for G&G costs. In a parallel vein, we also hear rumblings for a new Windfall Profits Tax. Revenue initiatives that do not come out of the pockets of taxpayers (directly) are much easier to pass through a public not exactly sympathetic to oil and gas. How may all of this affect us? I believe the onus will be squarely on our industry to slow down any new tax momentum by demonstrating how they spent profits wisely attempting to find new oil and gas reserves (especially domestically). This may not only partly blunt public criticism, but also give friends of the industry ammunition to help hold-off a Windfall Profits Tax in Congress. And, if this means more opportunities for geoscientists to engage in oil and gas exploration, I would vote YES! ■

(1) A World Awash in Oil? By Marianne Lavelle Posted 11/15/06 US News and World Report Online
http://www.usnews.com/usnews/biztech/articles/061115/15oil.htm

(2) http://www.tomudall.house.gov/display2.cfm?id=11447&type=Issues

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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No. of Issues	Eighth	Quarter	Half	Full	Full	Full	Full	Half	Quarter
10	$762	$1284	$2304	$4383	$5260	$7250	$7000	$6350	$2500
9	$762	$1284	$2304	$4383	$5260				
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Business Card	Full Page on Back of Calendar Page	TWO-COLOR AD
$125 per 10 Issues – Send two cards ($25 for each additional name on same card)	(FULL COLOR) $6250 - 10 issues	(Black and editor's choice) add 15% to B&W cost

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.

To place a logo or banner ad or to get more information, send an email to our Webmaster (webmaster@hgs.org) or go to the Website at http://www.hgs.org/ads/

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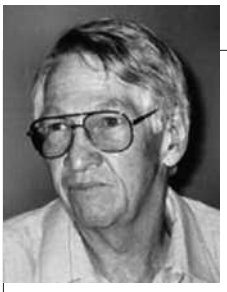

by ***Bill Rizer***
editor@hgs.org

Why I am Concerned

You may have noticed two new columns these past few issues. Charles Revilla has rejuvenated a column he wrote for the *Bulletin* in years past. The column, "On the Lighter Side," as the name suggests consists of quips, some very bad poetry and some only slightly exaggerated stories you may have heard in your wanderings around the oil patch. The other column, "In the News," again as the name implies aims to provide the members with a variety of geological news from other societies, from local and national newspapers and from various government agencies engaged in geoscience research. Contributions of newsworthy articles or announcements from the membership are always welcomed by the *Bulletin* staff, as long as they are in generally good taste and do not say really bad things about us.

You may also have noticed a few environmental articles and short news items about some of the challenges we are facing now and will be facing in the years ahead. Perhaps a few words need to be said about those. Firstly, they generally reflect my understanding and opinions and not necessarily the opinions of the HGS, other officers or board members. Were you or I to canvas the board, there would certainly be a wide range of opinions about most of the geologically-related controversial issues in the news these days. Having said that brings me to my second point—I write about global warming and climate change because I am very concerned, even scared that we are in the midst of a crisis that threatens not only our way of life but our very lives and the lives of many other peoples across the globe. The little research I have been able to do on this subject as a non-expert scientist has convinced me that this global warming crisis is real and perhaps more importantly is of our own making. Because it is of our own making we can fix it, maybe—but only if we act now and give it the attention it deserves.

There are most likely a wide range of opinions on this issue. Many of us are reluctant to embrace the idea that humans are responsible for much of the recent global warming. After all, we are in the business of finding and producing oil and gas, and the burning of fossil fuels is a major source of pollutants and greenhouse gases. As an eternal optimist and hopeless romantic, I believe we can develop the technology to burn fossil fuels much more efficiently and in ways that significantly reduce the harmful emissions from our cars and electrical plants. The costs will most likely increase, but those increases will probably be an order of magnitude lower than what the fear mongers are claiming. In fact we already have in place some of the technology to take the first meaningful steps. For example, there is a brief article in the "In the News" section that mentions existing technology for decreasing CO_2 emissions from coal burning power plants by 70% to 80%. We really can do this! But first we must convince ourselves that this is really necessary. As scientists we should have no difficulty convincing ourselves that we are indeed in a crisis. All we have to do is read the current scientific literature. Let me suggest you start with Science, the relevant AGU journals, the numerous NASA, USGS, NOAA and even EPA Web sites that provide broad access to most of the relevant information, much of it free. Look hard at the data and I am confident you will see the truth that permeates the responsible scientific literature. There is no lack of consensus among scientists active in the field. Global warming is a reality, we caused it, and we had better deal with it and deal with it now.

There is no lack of consensus among scientists active in the field. Global warming is a reality, we caused it, and we had better deal with it and deal with it now.

As always, we welcome your letters and opinions on this and other matters of geological concern. ■

In the News

by ***Bill Rizer***

Two Very Different Positions on Climate Change

Following are two very different position statements on climate change, probably the most important issue of the 21st century. The first, by the American Association of Petroleum Geologists, argues from an economic and geological history perspective that it is not possible to prove that recent climate change is caused by anthropogenic (human) activities. Therefore it is not necessary and in fact very unwise to impose high taxes on carbon emissions based on extrapolations of recent global temperature changes to the future.

The second position statement by the American Geophysical Union argues from a scientific point of view that changes in near surface global temperature observed over the last century are related in large part to human activities, particularly those that generate atmospheric greenhouse **In the News** *continued on page 49*

Wednesday, January 3, 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/.

For more information contact: Steve Hartzell, 713 651-9100, sphartzell@sbcglobal.net

Joint SPEE/SIPES Luncheon Meeting

*by **Annette K. Hugh***
Platts, a McGraw-Hill Company

The Fundamentals of Transparent and Accurate Pricing in Crude Oil and Refined Products Markets

Annette Hugh will detail the methodology, processes and development of benchmark pricing in spot oil and refined products markets. ■

Biographical Sketch

Annette Hugh is the Platts Houston bureau chief, where she is responsible for managing a 33-member editorial team that covers the oil, natural gas, petrochemical and electricity industries for the southern and western regions of the US and Latin America. In her 10 years at Platts, Annette has covered various markets including petrochemicals, polymers, gasoline blendstocks, LPG and LNG. From 2001 to 2004 Annette managed Platts' real-time petrochemical alert service as well as the Americas petrochemical team. Annette received a BA in Journalism/Latin American Studies and an MA in International Journalism from Baylor University.

HGS/GSH to Move Shared Office in January

The Houston Geological Society and the Geophysical Society of Houston will move the office they have shared for the past 5 years from 10575 Katy Freeway to a new location at 14811 Saint Mary's Lane, Suite 250. The new office, off of Dairy Ashford south of I-10, will be staffed by two full-time employees, Joan Henshaw and Lilly Hargrave. ■

Back row: Linda Sternbach (HGS President Elect), Dave Agarwal (GSH Past President), Roshan Agarwal, Front row: Steve Brachman (HGS President), Cheryl Desforges (HGS Treasurer)

Legendary Fields
Pre-and Post-Drill
Monday, January 8, 2007
Special HGS Dinner Meeting Program

Zafiro Field, *Equatorial Guinea with Joe Bruso, Sovereign Oil & Gas*

Mars Field, *Deepwater Gulf of Mexico with Mike Mahaffie, Shell*

Cantarell Field, *Gulf of Mexico with Jesus Garcia Hernandez, Pemex*

You've been to these Noteworthy HGS Meetings:

Legends in Wildcatting *(2000)*
Featuring Marlan Downey, Gene Van Dyke, George Mitchell, Joe Foster, and John Seitz

Legends in Wildcatting *(2003)*
With Bill Barrett, Michel T. Halbouty, Robbie Gries, Marvin Davis, and Thomas Barrow

GeoLegends *(2006)*
With Distinguished Geologists Peter Rose, Arnold Bouma, Peter Vail, and Albert Bally

In January 2007, HGS invites you to participate in the fourth of these Legendary dinner meetings. This meeting focuses on three giant fields from the Gulf of Mexico and Africa—presented by the companies that discovered them. See the original data when these were just prospects and get the rest of the story behind these fields by those who know them best.

Westchase Hilton, 9999 Westheimer (east of Beltway 8)
Social hour starts at 5:30 pm
This special HGS Dinner Meeting has limited seating. Please make your reservations online at www.hgs.org, or by mailing in this reservation form with payment before noon Friday, January 5.

Registration Form — Legendary Fields 2007

Reservations and prepayment encouraged by online reservation or send check and form to: HGS Office, Legendary Fields 2007, 10575 Katy Freeway, Suite 290, Houston, Texas 77024 or fax this form with credit card number to 713-463-9160

Name: _____

Company: _____

Work Phone: _____ Email: _____

No. of tickets desired: _____ Pre-registered Members & Spouses $28_____ Walk-ups/Non-members $35_____

Total amount enclosed: _____ Membership No. _____

(Please include names of all attendees, for registration badges): _____

_____

Credit Card number and type: _____

CVV or Card ID: _____ Expiration Date (required): _____

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Monday, January 8, 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#).

Three Legendary Giant Fields and Their Discovery Stories

*by **Andrea Reynolds** and **Linda Sternbach***

The HGS is continuing its succession of January "Legend" programs on Monday night, January 8, with a special dinner meeting featuring the "discovery stories" of three giant oil and gas fields as told by key technical personnel associated with the companies at the time of discovery.

Hear the stories behind the legendary Zafiro, Mars and Cantarell fields from the geoscientists who were directly involved in their discoveries

In 2001 and 2003, the "Legends in Wildcatting" programs captivated Houston geoscientists with dramatic stories of wildcat drilling successes. In January 2006, the program "Geo-Legends" was attended by 300 geoscientists and featured famous geologists talking about their distinguished careers.

Don't miss the next installment in the Legends series "Legendary Fields!" This HGS General Dinner meeting, organized by HGS Vice President Andrea Reynolds and HGS Past President Jeff Lund, features the following outstanding speakers: Joe Bruso, CEO Sovereign Oil and Gas, talking on the discovery of Zafiro Field, West Africa; Mike Mahaffie, Shell, speaking on the discovery of Mars Field, Deepwater Gulf of Mexico; and the Mexican petroleum company Pemex will present Cantarell Field, offshore Yucatan, Mexico.

It will be an evening of discovery stories that all geologists will enjoy providing inspiration and personal perspective on the energy business to carry everybody forward during 2007. The night's program will last until 9:30pm, and interested guests and spouses are welcome to attend with HGS members.

Pre-registration and prepayment for the Legendary Fields January dinner meeting can be made before January 5 using the HGS website at http://www.hgs.org/en/cev/?685, or by faxing the signup sheet found inside the December 2006 and January 2007 HGS *Bulletin*s. The pre-registration price is $28 for members and $35 for non-members. A limited number of walk-in spaces could be available at $35 each, but registration is limited to 200 people.

Following are summaries of the famous fields and biographical sketches of their distinguished presenters:

Field name: **Zafiro Field**

Location: Equatorial Guinea, offshore west Africa, near the Nigeria border

Operator: ExxonMobil and Devon Energy

Reserve size: 1.2 billion barrels recoverable, including satellite fields

Discovery date: Prospect mapped in 1993, discovery well drilled in 1995

Significant facts: First large oil field discovered in Equatorial Guinea. Field initially thought to be 180 MMBO, but expanded with extension drilling. Field is currently producing 300 MBOPD. Initially developed by Mobil (now ExxonMobil), and Ocean Energy/United Meridian (now merged into Devon Energy).

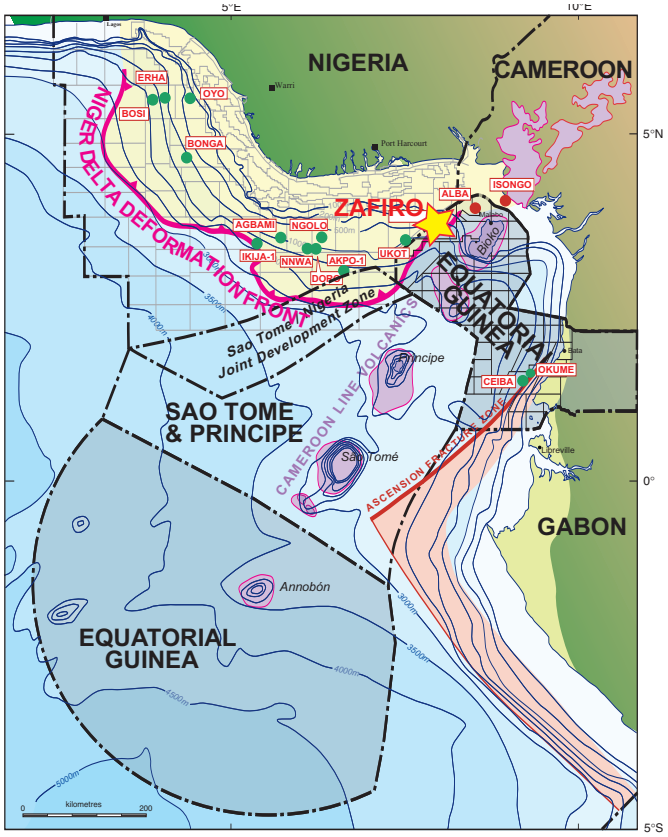
Trap: Structural /stratigraphic trap where multiple channel sediments deposited in a slope environment drape over a structural high.

Reservoir: Pliocene turbidite sands—main reservoir rocks were deposited by channels funneling sands into a laterally confined area.

Challenges: Channelized sand reservoirs with both oil and gas. Field accumulations are spread out geographically and were developed by using multiple facilities, tied together using subsea completions.

Discovery story: A small independent company (United Meridian) assembled their first international prospect in an incredible story of teamwork. The company's geologists and geophysicists understood the trends from neighboring Nigeria, and saw the potential on conventional 2D seismic shot by oil companies that had exited Equitorial Guinea. The prospect started as a bright spot play, but non-amplitude reservoirs contributed oil reserves.

Learning value: Small companies can move quickly and make a big impact internationally. The Zafiro field became larger by adding satellite accumulations. The field is an analog for deepwater channelized turbidite clastic reservoirs in Africa.



Distinguished presenter: J. M. (Joe) Bruso, Jr.

J. M. (Joe) Bruso, Jr. is an upstream executive for Sovereign Oil & Gas Company with thirty years of petroleum industry experience. Starting out as an exploration geophysicist, for the past fifteen years, he has focused on managing international exploration and development projects in West Africa and South Asia. On the domestic side, he played a principal role in the discovery of Neuhoff Field in Wood County, Texas in 1978. He also had a role in a number of oil and gas discoveries in the US Gulf Coast onshore and state waters, including some key early ells in the Calcasieu Parish Yegua Trend.

For the past fifteen years Joe Bruso managed international projects that drilled more than eighty wells and involved investments of more than 3.5 billion dollars. He has operated exploration, appraisal and development projects onshore, offshore, and in deep water in Africa and Asia for partner groups including Shell, ExxonMobil, BP/Statoil, Conoco and many others. He is recognized for discovering the Lion, Panthere and Zafiro fields in West Africa. These fields are largely responsible for making Equatorial Guinea a significant oil-exporting nation and for making Côte d'Ivoire energy independent and a net exporter of electricity through natural-gas-fired power generation.

In March, 2000, Mr. Bruso founded Houston-based Sovereign Oil & Gas Company. Sovereign has focused its project development activity in the Gulf of Guinea (West Africa), mainly in Equatorial Guinea and Nigeria. Sovereign is presently participating in the appraisal and development of three proven oil fields in Nigeria, and is anticipating its first commercial oil production in 2008. Mr. Bruso is a graduate of the University of Houston, Texas, where he earned a BS in Geology and attended graduate school in geophysics. He has been honored with the orders of Chevalier of the Order of Mines in Côte d'Ivoire and Caballero of the Order of Independence in Equatorial Guinea for his contributions to their energy sectors.

General Dinner *continued on page 15*

NEW Short Course!!

Integrated Petrography and Geochemistry of Carbonate Rocks and Its Application to Reservoir Studies

Date: March 12-13, 2007
Location: Dallas, Texas
Tuition: $690, AAPG Members; $790, non-members (increases to $790/890 after 2/12/07); includes course notes, plus lunch and refreshments each day.
Content: 1.5 CEU
Instructors: Peter Scholle and Dana Ulmer Scholle, New Mexico Bureau of Geology and Mineral Resources, Socorro, New Mexico

Who Should Attend

Geologists and engineers interested in carbonate reservoir characterization, including understanding the depositional setting, diagenetic history, and origin and timing of porosity development or destruction in limestone and dolomite reservoirs.

Plan Now for Spring Education with AAPG!!

Courses at the AAPG Annual Convention

Reservoir Engineering for Petroleum Geologists

Date: March 31-April 1, 2007
Location: Long Beach, California, with AAPG Annual Meeting
Tuition: $690 (increases to $790 after 3/2/07); includes course notes and refreshments.
Content: 1.5 CEU
Instructors: Richard G. Green, William Kazmann, LaRoche Petroleum Consultants, Dallas, Texas

Who Should Attend

The course is designed for personnel who wish to acquire a broad understanding of the factors that influence the production of oil and gas from reservoirs. The course presents information that can be applied to geologists, geophysicists, petrophysicists, land management specialists, and managers with no previous training in reservoir engineering. It can also serve as an introductory course for engineers who have not had previous training in reservoir engineering.

Principles of Reservoir Characterization

Date: March 31-April 1, 2007
Location: Long Beach, California, with AAPG Annual Meeting
Tuition: $650 (increases to $750 after 3/2/07), includes course notes and refreshments
Content: 1.5 CEU
Instructor: Jeffrey Yarus, Quantitative Geosciences, Inc., Houston, Texas

Who Should Attend

The class is appropriate for geoscientists, engineers and modeling technicians who would like a better understanding of what's behind the sophisticated 3D reservoir modeling software they are using.

Quick Guide to Carbonate Well Log Analysis with Flow Chart, Case Studies and Problems

Date: March 31, 2007
Location: Long Beach, California, with AAPG Annual Meeting
Tuition: $500 (increases to $600 after 3/2/07), includes course notes and refreshments
Content: .7 CEU
Instructor: George B. Asquith, Texas Tech University, Lubbock, Texas

Who Should Attend

This is an advanced course in carbonate well logging designed for geologists, engineers and geophysicists who are interested in the detailed methods of carbonate log analysis. The course participant should come to the course with basic understanding of the principles of well logging and at least a few years of industry experience.

Deep-Water Siliciclastic Reservoirs, California

Leaders: Stephan Graham and Donald R. Lowe, Stanford University, Stanford, California
Dates: April 5-10, 2007, following the AAPG Annual Meeting
Location: Begins in Palo Alto and ends at the airport in San Francisco, California; Begins Thursday, 4/5, 5:00 p.m., and ends Tuesday mid-afternoon, 4/10.
Tuition: $2,675 (increases to $2,775 after 3/02/07), includes lodging, transportation during the seminar, lunches, guidebook and group dinner (1 night)
Limit: 20
Content: 5.5 CEU

Who Should Attend

Geologists, geophysicists, reservoir engineers, managers and anyone working with deep-water reservoir systems.

AAPG GEOSCIENCE EDUCATION

For further information, please contact the AAPG Education Department
Phone: 918-560-2650; Fax: 918-560-2678; e-mail: educate@aapg.org
Or log on to www.aapg.org/education/index.cfm

HGS General Dinner Meeting continued from page 13

Field name: **Mars Field**

Location: Offshore U.S. Gulf of Mexico, Mississippi Canyon

Operator: Shell Offshore, BP

Reserve size: 700 Million Barrels

Discovery date: Prospect mapped in 1986, discovery well drilled in 1989

Significant facts: One of the most studied oil and gas fields in the GOM in terms of seismic expression and trap configuration thanks to numerous publications by Shell, BP and academia. Mars Field proved to industry that turbidite sands could be significant reservoirs and opened up the deepwater trend. Technological advances in production facilities (for example, the tension leg platform) paved the way for deepwater development of many fields in 3000 ft. of water and greater.

Trap: Structural/stratigraphic trap associated with onlap onto salt diapers

Reservoir: Pliocene turbidite sands found in compartmentalized reservoirs. Fourteen significant, amplitude-supported intervals ranging in depth from 10,000 to 19,000 feet subsea.

Production facts: Individual wells at one time produced 20,000 to 30,000 BOPD. First of Shell's long history of deep water discoveries, currently with 12 fields on production.

Challenges: Inventing the engineering technology needed to bring deepwater reserves to shore. The deepwater GOM effort was always fighting "marginal" economic status because of high development costs. "Shell spent over $1 billion, including some very expensive dry holes, before having enough data to be confident of a successful play." (see Mike Forrest's article http://www.aapg.org/explorer/wildcat/2000/wildcat07.cfm)

Discovery story: Prospect story began in 1986 when the US federal area-wide leasing started, opening up blocks in deepwater GOM hundreds of miles offshore. Bright amplitudes turned out to be pay. Many additional blocky sand oil pays were found hidden as deeper sands that lacked "bright spot" support on the seismic available at that time. High-quality seismic data and reservoir architecture models were combined in a pre-development phase of prospect to optimize well placement.

Learning value: The reservoirs of Mars field have become a "type section" for the deepwater turbidite complexes thanks to the many technical publications of Shell geoscientists and the distribution of reservoir/well data to industry and academia.

Distinguished presenter: M.J. (Mike) Mahaffie

M.J. (Mike) Mahaffie is a 21-year veteran with Shell. From 1989 - 2001, he worked the deepwater GOM in various roles, from the pre-development geologist of the Mars discovery, to more recently as the team leader for the Perdido foldbelt exploration effort that included the discovery of the Great White Field in 2002–2004. He is currently stationed in Shell's offices in Risjwijk, The Netherlands, as a technical advisor for global exploration.

Mike Mahaffie first published his studies of the Mars field reservoirs in a series of papers and talks at AAPG and HGS between 1993-1995. One key reference is his paper from the 1994 GCSSEPM 15th Annual Research Conference called," Reservoir classification for turbidite intervals at the Mars discovery, Mississippi Canyon Block 807, Gulf of Mexico." This was followed by a paper he wrote with Shell co-worker Mark Chapin, called "3-D architecture modeling using high-resolution seismic data and sparse well control: an example from the Mars "pink" reservoir, Mississippi Canyon area, Gulf of Mexico," printed in 1996 as a full scale color book called AAPG Studies in Geology #42. In 1995, Mike gave a well-received presentation to the Houston Geological Society on Mars field.

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Field name: **Cantarell Field**

Location: Offshore Yucatan Peninsula, Mexico

Operator: Pemex Exploración y Producción (PEP)

Reserve size: 11 billion barrels produced, 7 Billion remaining

Discovery date: Discovery well drilled in 1976, first oil in 1979

Significant facts: Cantarell is a giant field with high rates of oil production comparable to Ghawar field in Saudi Arabia. Cantarell field produces about one-third of Mexico's total output.

Trap: Compressional duplex structure trap producing from multiple thrust sheets

Reservoir: The upper reservoir is Upper Cretaceous brecciated dolomite deposited by a paleo-shelf failure (underwater landslide). The lower reservoir is a Lower Cretaceous dolomitic limestone.

Production facts: The largest offshore development project in the world to date, with a total installed cost of more than $5 billion. Produces heavy oil.

Challenges: The field is declining and affecting Mexico's internal supply of crude oil. The field reached an early peak in production over a million barrels per day in 1981. During the 1980's Pemex built 26 new platforms, and drilled new wells. Today the field produces 2.1 million barrels (see article by G.R. Morton).

Discovery story: The Cantarell Complex is made up of the Nohoch, Chac, Akal, Kutz, Ixtoc, and Sihil fields, with Akal being the largest. The discovery well initial rate was 34,000 barrels per day.

Challenges: Pemex has extensively studied the field complex in an effort to fully extract reserves from complex structural compartments. 3D seismic has improved understanding of the field. Ongoing challenge is to offset the decline of production by finding new reserves.

Learning value: Carbonate reservoirs have high production rates. Cantarell is an analog for carbonate facies analysis, and is linked to world-class source rocks. The field is an analog for fields and prospects in compressional tectonic regions in South America and Mexico.

Presentation:
Jesus Garcia Hernandez, Coordinador de Prospectos y Caracterizacion
Inicial Area Cantarell, Activo Integral Cantarell
Ciudad del Carmen, Campeche

References

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Oil and Gas Journal article (Feb 16, 2004) by Joe Bruso and Steven L. Getz

http://www.sovereignoil.com/interior/OGJFeb16.pdf

AAPG Explorer January 2003, "Equatorial Guinea on Fast Track" "http://www.aapg.org/explorer/2003/01jan/eguinea.cfm

Mars Field References

AAPG Explorer article, July 2000, by Mike Forrest, called "Bright Investments Paid Off" at http://www.aapg.org/explorer/wildcat/2000/wildcat07.cfm

General Dinner continued on page 23

Tuesday, January 9, 2007

Anadarko Tower
The Woodlands, TX
10:00 AM to 11:00 AM

No Charge but Attendance Limited to 50 HGS Members

For Further Details Contact
Aaron J. Adams, E&P Technology Center, Anadarko Petroleum Corp., 832.636.1669 or at aaron.adams@anadarko.com

2006-07 AAPG Distinguished Lecture

by ***Steven Bachtel***
ConocoPhillips
Houston, TX

Funded by the AAPG Foundation
Sponsored by Anadarko

Seismic Stratigraphy of the Miocene-Pliocene Segitiga Platform, East Natuna Sea Indonesia: The Origin, Growth and Demise of an Isolated Carbonate Platform

Seismic stratigraphy and seismic facies analysis provide a useful methodology for the genetic understanding of carbonate platform systems during exploration, initial assessment, and early field development (e.g. sparse well data). A high-resolution 2D seismic survey covering 7500 square kilometers allows documentation of the evolution of a Miocene-Pliocene carbonate platform in the East Natuna Sea, Indonesia. The Segitiga Platform (1400 sq. km.) contains Terumbu Formation carbonates up to 1800 meters thick that were deposited in platform interior, reef and shoal margin, and slope to basin environments of an isolated carbonate platform.

Eustatic sea-level change controlled the timing of sequence boundary formation, but structural movements modified internal sequence character and facies distribution.

The Segitiga Platform was subdivided into twelve seismic sequences that demonstrate a history of: 1) initial isolation, 2) progradation and coalescence, 3) backstepping and shrinkage, and 4) terminal drowning. Seismic facies maps indicate that the Segitiga Platform originated as three smaller platforms on extensional fault block highs. Deep intraplatform seaways separated these platforms. Progradation of shallow-water carbonates filled the seaways during a phase of coalescence and the three platforms were amalgamated to form a composite platform (1400 sq. km; middle-upper Miocene). A rapid relative rise in sea level at the end of Miocene time caused a major backstepping of the carbonate margins (and a concomitant drowning of the adjacent Natuna Field carbonates to the east) resulting in a platform of reduced size (600 sq. km) during the lower Pliocene. Rapid subsidence, combined with a eustatic rise at the end of the early Pliocene caused terminal drowning of the Segitiga Platform. The platform was buried by younger siliciclastics of the Muda Formation.

Eustatic sea-level change controlled the timing of sequence boundary formation, but structural movements modified internal sequence character and facies distribution. Faulting created topography that acted as templates for the initiation of carbonate platform deposition, as well as providing pedestals for the localization of backstepped platforms. Cessation of faulting may have allowed progradation to occur due to a reduction in the rate of increasing accommodation. Regional subsidence may have controlled the location and extent of platform backstepping. Geographic variability in sequence stacking of coeval platform margins is observed over relatively short distances. Progradation is most strongly developed on the leeward side of the platform, but increased accommodation due to rapid local subsidence or changing oceanographic currents also influenced the direction and magnitude of progradation. ■

Biographical Sketch

Steve Bachtel received a PhD at Texas A&M University in 1995. He has worked for ConocoPhillips since 2005, for ExxonMobil, Phillips and AGAT-Geochem Consultants in Denver. His interests include integration of seismic interpretation, seismic and image attributes, well logs, petrography and core to establish more disciplined stratigraphic frameworks and a better understanding of the spatial distribution of reservoir properties that fill those frameworks. He has published in AAPG, SEPM and JSR.

Monday, January 15, 2007

The H.E.S.S. Club • 5430 Westheimer
Social Hour 5:30-6:30 p.m.
Dinner 6:30 p.m.

Cost: $25 Preregistered members; $30 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#).

HGS International Explorationists Dinner Meeting

by ***Allan Kean, Max Torres, and Dewi Jones,*** *RepsolYPF,*
David Connelly, *dGB,*
Paul Sikora, *EGI,*
Leo Legarretti, *Patagonia*

Reducing Geologic Risk in Frontier Deep Water Explorations Settings, Suriname, South America

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.

Working in frontier exploration areas usually means facing a situation of extrapolation based on little to no available geological and geophysical data. Fundamentally, this is why an area is considered frontier in nature! In order to justify drilling a single well with costs often in excess of $40 million, addressing geologic and geophysical risk becomes important. Increasing the probability of success through scientific applications and integration of different disciplines becomes a value-adding exercise as part of our job as geoscientist.

We need to address the geologic and geophysical risks associated with specific areas and prospects to determine where best to spend our time, energy and resources and to determine what studies will assist in the reduction of risk.

Having worked in frontier exploration for almost 30 years, one thing has remained constant: a lack of data. The job is difficult enough to begin with. Therefore, how do we deal with convincing people to invest the millions of dollars needed to drill to find oil? I would offer that we commit the resources, integrate our technologies and develop a consistent story for our recommendations. More importantly, we need to address the geologic and geophysical risks associated with specific areas and prospects to determine where best to spend our time, energy and resources and to determine what studies will assist in the reduction of risk.

This talk is based on RepsolYPF's ongoing efforts to maximize the Pg&g (probability of geological and geophysical success) for a frontier exploration project in the offshore deep water area of Suriname, South America. Through the multidisciplinary integration of play type analogues, biostratigraphy, sequence stratigraphy and hydrocarbon charge models, a reduced risk and increased Pg&g has been achieved. Utilization of these technologies allows for the variations in the factors in either a positive or negative direction. As geoscientists and explorationists, our charge is to tell a story based on science and to use every possible technical means available to ensure that we recommend drilling a well that is as low risk as possible.

In the pre-drill world, one is always comfortable with the recommendation and prognosis. The post-drill results often reveal a very different story! ■

Biographical Sketch

Allan Kean graduated from the University of Mississippi with a B.S. in Geological Engineering in 1976. At "Ole Miss" he was a member of Sigma Gamma Epsilon, the honorary earth science organization. He earned an MS in geophysics from the Georgia Institute of Technology (Georgia Tech).

Alan joined the Technology Group in the New Orleans office of Amoco in 1978. In 1982 he left Amoco to work in international operations for Mobil in Dallas where he worked on prospects in Tunisia, Cameroon, Angola, Morocco, Kenya, Madagascar, Ghana, Cote D'Ivore and Nigeria. He returned to New Orleans to do 3D interpretation and

International Dinner *continued on page 23*

HGS International Explorationists Dinner Meeting continued from page 21

visualization projects for Mobil's large 3D survey in Nigeria, and on projects in Algeria, Kazakhstan and the Campos Basin in Brazil. He has published papers in the GCSSEPM Foundation's 15th Annual Research Conference and the Society for Exploration Geophysics (SEG)'s *The Leading Edge*, and has presented papers at an SEG summer workshop and at meetings hosted by the SEG, the Sociedade Brasileira de Geofísica and the Royal Geologic Society in London. After the Exxon/Mobil merger he worked for Coastal, consulted for Devon, and in July 2004 joined RepsolYPF in the Woodlands, where he has been responsible for company activities in Suriname and the Guyanas.

HGS General Dinner Meeting continued from page 17

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Chapin, M. A., G.M. Tiller, and M.J. Mahaffie, 1996, 3-D architecture modeling using high-resolution seismic data and sparse well control: an example from the Mars "Pink" reservoir, Mississippi Canyon area, Gulf of Mexico; in P. Weimer and T.L. Davis eds., AAPG

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Cantarell References

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"Three-dimensional structural model of the Cantarell and Sihil structures, Campeche Bay, Mexico",by Shankar Mitra, Gerardo Correa Figueroa, Jesus Hernandez Garcia, Antonio Murillo Alvarado, AAPG Bulletin, January 2005, v.89, p 1-26.

"Structural style of the Gulf of Mexico's Cantarell complex" By Jesús García Hernández, Martín González Castillo, and Jorge Zavaleta Ruiz, The Leading Edge, Volume 24, Issue 2, pp. 136-138 (February 2005)

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"The Gulf of Mexico Basin South of the Border: The Petroleum Province of the Twenty-First Century," By Alfredo E. Guzman, and Benjamin Marquez-Dominguez, in M. W. Downey , J. C. Threet and W. A. Morgan, editors, AAPG Memoir 74, 2001.

The 6th PESGB/HGS African Conference
First Announcement and Call for Papers

AFRICA'S PETROLEUM SYSTEMS :
FROM OUTCROP TO DEEPWATER

Cape Town Convention Centre , South Africa
11-12 September, 2007

Two days of talks and poster sessions will include ground breaking presentations on all aspects of exploration and production geoscience in onshore and offshore Africa. Talks have already been offered by BP, Shell and Professor Kevin Burke. The conference will be followed by a core workshop and by field trips, including one to the classic turbidite Tanqua Karoo outcrops, described by Dick Selley as 'the best petroleum geology field trip in the world'

Abstracts (circa 200 words) are invited and should be sent as soon as possible, and no later than March 2007, 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 from around April, 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 on (44) (0) 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

Tuesday, January 16, 2007

The Sofitel Hotel • 425 Sam Houston Pkwy. East
Social 11:15 a.m., Luncheon 11:30 a.m.

Cost: $30 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#).
Qualifies as 1.0 CEU for Texas State Geoscientists

HGS Northsiders Luncheon Meeting

by ***Jeff Brami***
ExxonMobil

The HGS Northsiders Group *strives to provide a variety of technical talks to our audience that range from new discoveries play concepts to practical applications of technology. For the January luncheon, Jeff Brami, ExxonMobil, will give a presentation on the practical application of new and current technology, from the operational perspective of wireline logging conveyance systems. This talk is appropriate for both the young professionals in our society (NeoGeos) as well and for all members who would like to keep up with technical advances. Jeff's talk addresses a very critical data gathering step in the hydrocarbon exploration and exploitation process.*

Frank Walles, Chairman, Northsiders

Wireline Logging Conveyance Systems

This talk deals w/ the methods used to get wireline (WL) sensors in and out of wellbores. Although the primary focus of the presentation is open-hole, most of the methods discussed are applicable to cased-hole wells. Following a brief history of well drilling there will be a general description of the various types of wells and the logging challenges they present.

Complex wellbores often generate artificial log responses that mask true formation properties.

Following a brief introduction to directional drilling, various philosophies/strategies for logging those wells are reviewed from a "value-of-information" perspective. Descriptions of typical logging conveyance systems are followed by a discussion of more complex solutions for difficult logging scenarios. An overview of stuck logging tools is followed by a primer on how drillpipe may be used in logging wells with both large and small (2 ?") diameter tools.

The final topic is logging high angle wells with tractors and coiled tubing. The twists and turns in our wells can create some unique petrophysical puzzles. Complex wellbores often generate artificial log responses that mask true formation properties. A table summarizing oilfield formation evaluation methods and a simplified pragmatic overview wrap up the presentation. ■

Biographical Sketch

Following a tour in Viet Nam with the U.S. Marine Corps, **Jeff Brami** attended the University of South Florida on the G. I. Bill, graduating in 1975 with a Bachelor's Degree in Geology. He has been a geologist with Exxon since 1978, working for six years in Malaysia and Japan as a wellsite and prospect geologist. Upon returning to the United States in 1985, he worked in New Orleans as an operations geologist in the eastern United States and Gulf of Mexico. A transfer to Houston in 1991 moved him into research with a focus on Measurement-While-Drilling (MWD) formation evaluation.

From 1995 to 1999, Jeff traveled extensively in the People's Republic of China, primarily in the Tarim basin, as well as in Indonesia. Jeff also spent time in Latin America as a geological operations supervisor in Trinidad and Brazil. He served as president of the International MWD Society (IMS) for two years as well as conference chairman for the SPWLA Topical Conference on MWD. He was awarded SPWLA's Distinguished Service Award in 1996. He also served as the chairman of the SPE workshop on LWD in Austin in May 2000. Jeff's SPE paper on MWD calibration and quality control has been re-published in both the SPWLA and SPE re-print series. His primary focus in recent years has been to facilitate cooperation among geologists, drilling organizations and MWD service companies—a goal that may take a while to complete.

Currently he is one of the two operations geologists for the US Production Department at ExxonMobil Production Company. He is responsible for data acquisition on production wells around the USA, particularly in Colorado and Texas. Additionally, he's often involved in assessing new technology associated with WL logging, LWD, coring and mud logging.

Review of 2006 HGS Grand Canyon Geology Field Trip

The HGS Grand Canyon geology field trip in June, 2006 was an unqualified success with 33 participants enjoying approximately 187 miles of Colorado River rapids, challenging side canyon hikes, and fantastic geological exposures. Participants ranged in age from 13 to 68 with an average age of 49 (the same as in 2004). Participants came from Colorado, Washington state, Arkansas and Texas.

33 participants enjoyed approximately 187 miles of the Colorado River rapids and fantastic geological exposures over seven days filled with geology, spectacular scenery, challenging side canyon hikes, gourmet al fresco dining, geniality and fun.

The "travel day" saw everyone meet at the airport in Las Vegas, travel by bus and limo to Zion National Park in Utah for a close encounter with the Jurassic Navajo Sandstone, and then on into Marble Canyon Lodge for the night. After an orientation meeting at Lee's Ferry (Figure 1) the next morning (day 1), the eager participants boarded two rafts and began the river adventure. The following seven days were filled with geology, big rapids, exciting side canyon hikes, gourmet al fresco dining, geniality and fun, all capped by a final evening of entertainment. On the morning of day 8, participants flew by helicopter out of the canyon over a volcano and the associated lava flows to the Bar 10 Ranch on the north rim for a shower and visit to the gift shop. Next came boarding 16-passenger planes for the flight to the North Las Vegas airport. Finally, everyone was transported to either the McCarran Airport or a hotel in Vegas.

About the Trip

From Lees Ferry to Lake Mead the Colorado River covers 285 miles and drops from an elevation of 3,090 feet at Echo Cliffs to 870 feet at Lake Mead. The average gradient is 7.7 feet/mile.

Review of 2006 HGS Grand Canyon Trip *continued on page 29*

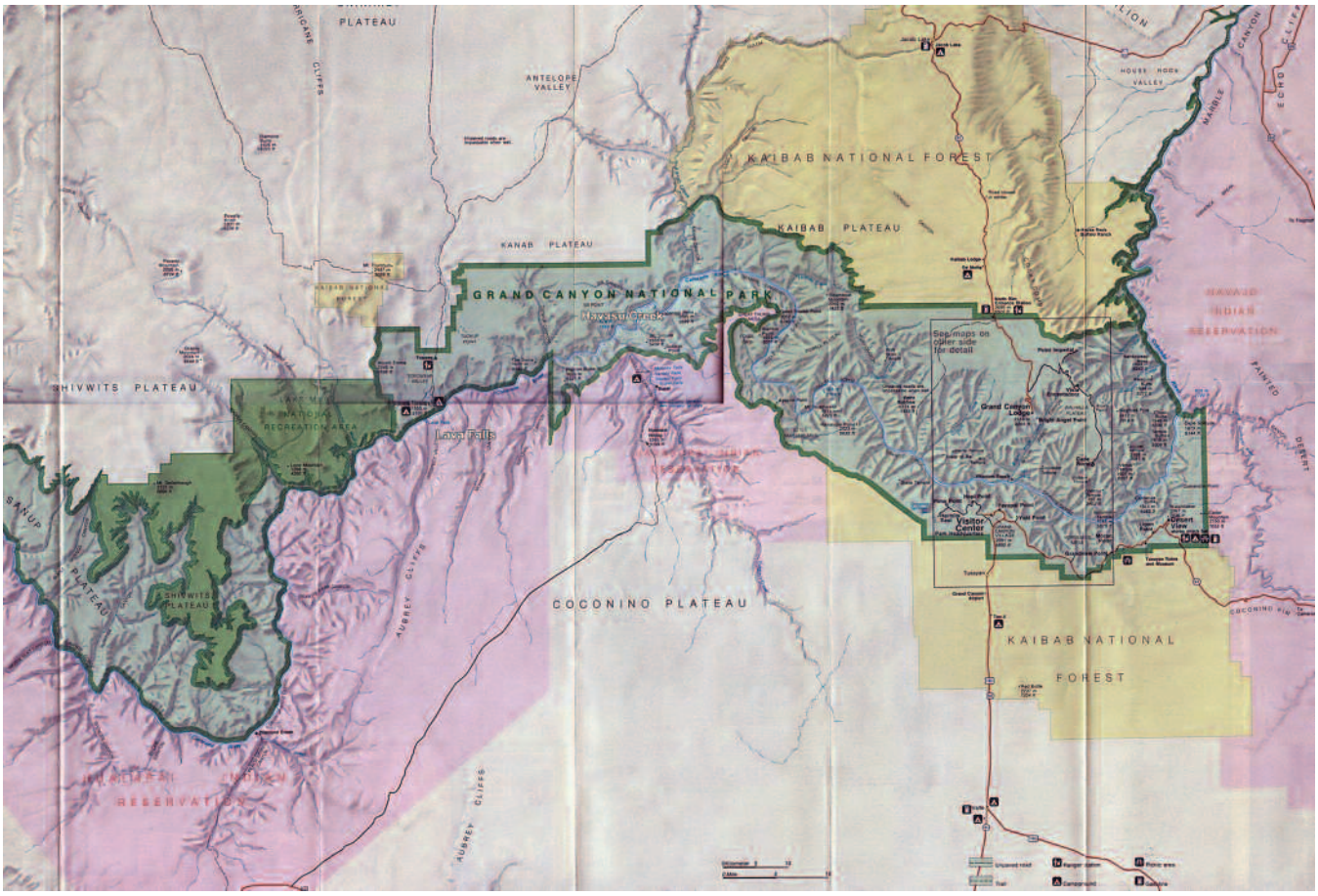


Figure 1. Location Map for the Grand Canyon Field Trip.

For more information or to sign up for future trips send your name, address, email and phone number to Dave Lazor at jdlazoroilngas@aol.com. Estimated cost for the next field trip in early June 2008 is $2,400 to $2,500. This includes guidebooks, itinerary, bus, lodging, drinks, meals, park entrance fees and tips.

Review of 2006 HGS Grand Canyon Trip

continued from page 27

Figure 2. Dave Lazor and Shinumo Quartzite, mile 75.5.

The HGS river trip begins at Lees Ferry and leaves the Colorado River near mile marker 187. At Lees Ferry the bedrock is the Triassic Moenkopi Formation, but shortly down river the Paleozoic section outcrops and continues throughout Marble Canyon. After 63 river miles the 700 million year old Dox Sandstone is encountered, and at mile 78 exposures of the 1,700 million year old Vishnu Schist mark the beginning of the Inner Gorge. A stop at Phantom Ranch on day 4 brings one back temporarily to civilization and the telephone.

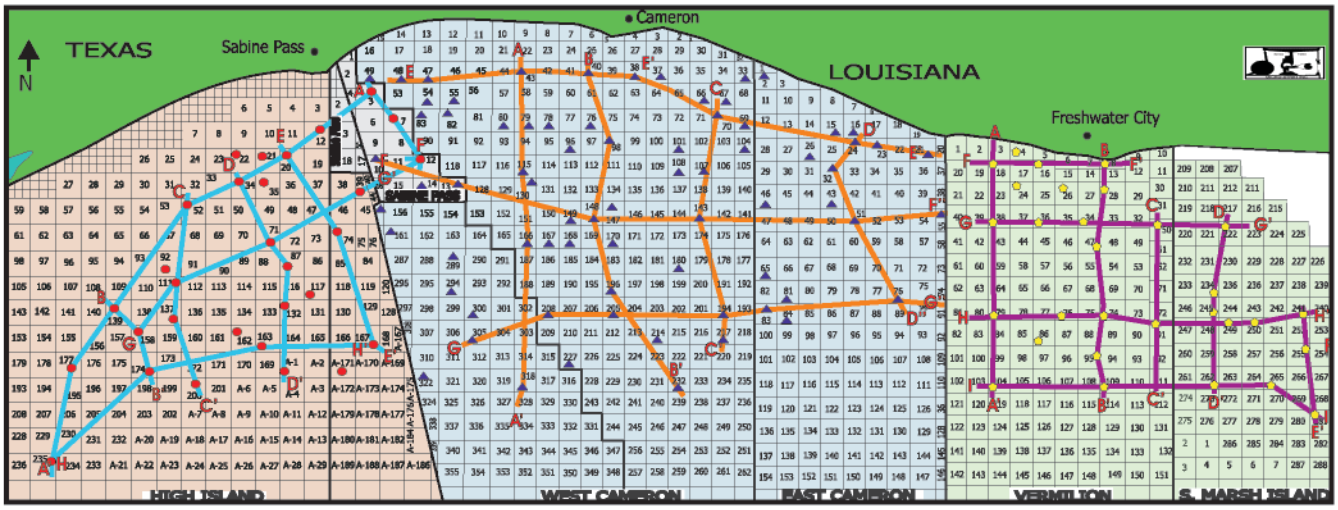
Figure 3. Bob Boyce discusses the Great Unconformity where the Cambrian Tapeats Sandstone lies on the Precambrian Vishnu Schist in Blacktail Canyon.

The geology of the canyon is awesome with the results of many geological processes readily visible along the river. Precambrian extensional and compressional tectonic events are overprinted by Tertiary compression. Sedimentary features such as cross bed-

Review of 2006 HGS Grand Canyon Trip continued on page 31

Figure 4. Vasey's Paradise

"DEEP TO MEDIUM GAS" INDIVIDUAL PROJECTS FOR THE 2006/2007 LEASE SALE



Project Cost:

$7,900 High Island-Sabine Pass (30 wells)
$14,900 West-East Cameron (74 wells)
$7,900 Vermilion-S. Marsh Island (30 wells)
$7,900 Eugene Island (30 wells)
$7,900 Ship Shoal (30 wells)
$7,900 S.Timbalier-South Pelto (35 wells)

Digital well-logs:

$900 High Island-Sabine Pass (30 logs)
$1,800 West-East Cameron (74 logs)
$900 Vermilion-S. Marsh Island (30 logs)
$900 Eugene Island (30 logs)
$900 Ship Shoal (30 wells)
$900 S. Timbalier - S. Pelto (30 wells)

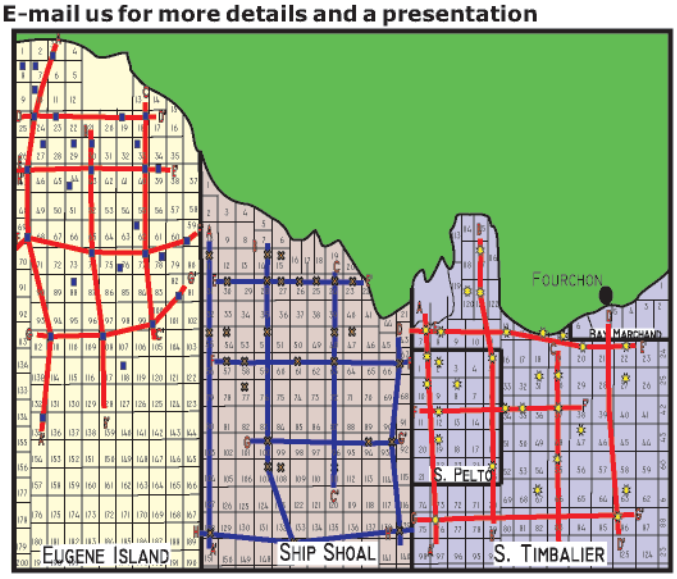
PROJECT DELIVERABLES

1. Single well plots for each well with mapable Genetic Sequences correlated with marker species, paleowater depth, well log and FAIRFIELD INDUSTRIES INC., Extracted 3-D PSTM seismic panels (one mile in length).
2. Biostratigraphic and Sequence Stratigraphic table/well, with marker species, paleowater depth, and age dated MFS (Seals).
3. Cross Sections (Dip and Strike) age dated MFS and well logs.
4. Deliverables in two types of formats:
   a. Hard copy binder (11"x 17") printed on premium paper and includes written report, single plots, etc.
   b. Report and raw data is delivered in digital format.

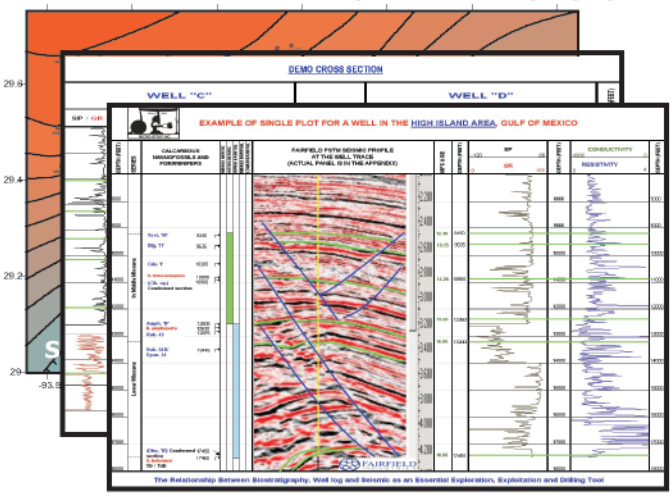
PROJECT BENEFITS

- Show the relationship between Genetic Sequences (in time), seals, potential reservoir sands, paleowater depth, especially in the Miocene section.
- 7 to 12 Genetic Sequences associated with producing and potential deep gas targets.
- Identify MFS (seals) on well-logs and 3-D seismic to provide local and regional timelines.
- Use point of intersection of MFS and log to construct, isopach, sand %, structural and biofacies maps.
- Identify the type of reservoir sands in each Sequence, play concepts and facies' relationships within each Sequence.
- Correlate MFS with continuous reflectors on seismic panels in a 360 degree arc from each project well with the corresponding regional FAIRFIELD data set.

E-mail us for more details and a presentation



Integrating Biostratigraphy, Well-Logs, Seismic Profiles and Sequence Stratigraphy



Please Contact us at:

MICRO-STRAT INC., 5755 Bonhomme, Suite 406, Houston, TX 77036, Tel: 713-977-2120, Fax: 713-977-7684, e-mail:msiw@Micro-Strat.com, Web-Site: www.Micro-Strat.com

Review of 2006 HGS Grand Canyon Trip

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Figure 5. Reptile tracks in Coconino Sandstone (Permian), mile 7.8.

Figure 6. Rafts at the mouth of the Little Colorado River.

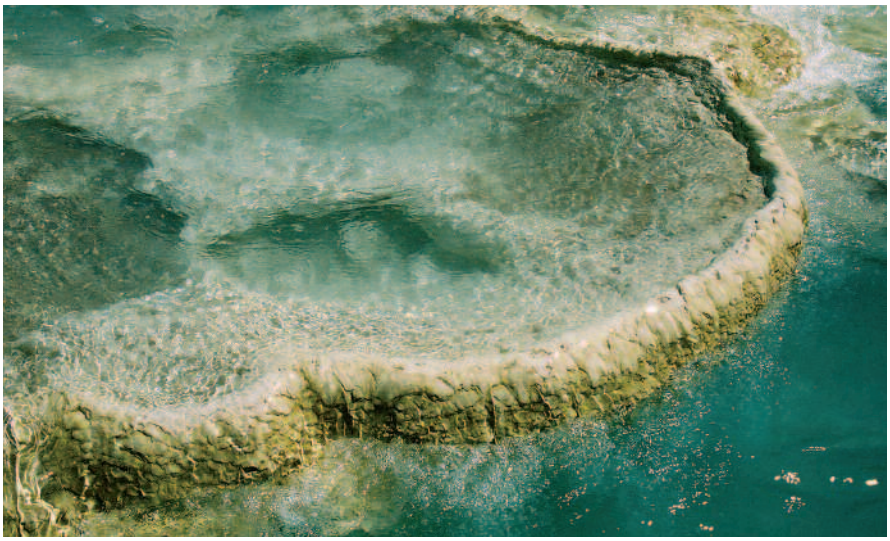

Figure 7. Recent travertine in Little Colorado River. Photo by Dave Lazor.

ding, soft sediment deformation, salt casts and ripple marks are commonplace. Recent large scale slumping of the canyon walls into the river is somewhat reminiscent of Gulf Coast growth faults. All of these features are easily viewed by trip participants, when they are not reveling in the breathtaking beauty of the formations and the wonderful companionship of this wilderness adventure.

A Brief Geologic History

The geologic history of the area spans a time frame of approximately 2 billion years beginning with deposition of the sediments and volcanics that later became the Vishnu Schist and Zoroaster Granite. Many tens of thousand of feet of those sediments accumulated within or near an island arc setting. Deep burial, possibly due to subduction, and the resulting metamorphism changed the rock to schist and granite approximately 1.7 billion years ago (don't take schist for granite). Vertical foliation in the schist documents the great compressional forces. More than 6 miles of uplift and accompanying erosion left the Vishnu terrain almost peneplained before incursion of the sea deposited the Grand Canyon Supergroup. The Supergroup consists of 12,000 to 14,000 feet of mostly Precambrian sandstones and shales with some lava flows and limestone. all over a basal conglomerate. The sedimentary rocks are mostly shallow water deposits with some units containing mud cracks, salt casts and raindrop impressions. Some have been positively identified as oil source rocks. One of the formations, the Shinumo Quartzite, is a highly indurated sandstone showing impressive soft sediment deformation (Figure 2). Extensional tectonics deformed the Supergroup into half grabens along westward dipping normal faults. These extensional faults are believed to be related to the opening of the ancestral Pacific Ocean and are similar to the ones seen buried adjacent to the Appalachian coastal plain and on both sides of the Red Sea. Erosion beveled the block faulted Supergroup to nearly a peneplain prior to flooding by Cambrian seas from the west

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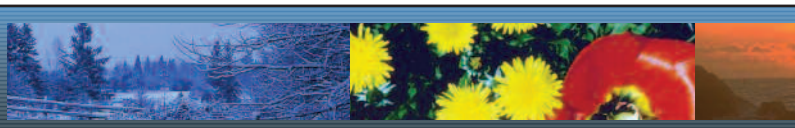
Figure 8. Elves Chasm. Photo by Dave Lazor.

that deposited the Tapeats Sandstone and the overlying Bright Angel Shale and Muav Limestone. These formations comprise a sequence stratigraphy event with the Tapeats representing the near shore beach and point bar environment, the Bright Angel Shale the near offshore environment, and the Muav representing the far offshore where terriginous sediment was scarce. The angular unconformity between the Supergroup and the Paleozoic section is quite evident from rim vistas. The "Great Unconformity" where the Tapeats lies on the Vishnu Schist is studied closely in Blacktail Canyon (Figure 3) on day 5.

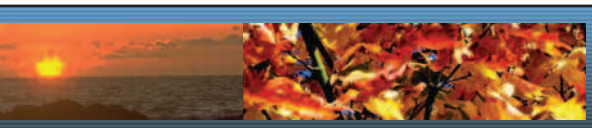
During the Devonian Period the Antler Orogeny occurred west of the Colorado Plateau and probably caused enough uplift that the Ordovician and Silurian rocks, if deposited, were removed. Some Devonian rocks, such as the Temple Butte Limestone, fill erosional channels cut into the Cambrian Muav Limestone and are capped by an unconformity. The channels filled with the limestone have mostly an east-west orientation with river flow from east to west. In the western portion of the Grand Canyon the Temple Butte is a continuous formation above the Cambrian Muav Limestone.

Review of 2006 HGS Grand Canyon Trip *continued on page 37*

January 2007



Sunday	Monday	Tuesday	Wednesday
	1 *Happy New Year* HGS office closed	2 **HGS Executive Board Meeting**	3 **SIPES Luncheon Meeting** by Annette K. Hugh *"The Fundamentals of Transparent and Accurate Pricing in Crude Oil and Refined Products Markets"* Page 9
7	8 **Special HGS General Dinner Meeting** *"Legendary Fields"* Page 12	9 **AAPG Distinguished Lecture** by Steven Bachtel *"Seismic Stratigraphy of the Miocene-Pliocene Segitiga Platform, East Natuna Sea Indonesia: The Origin, Growth and Demise of an Isolated Carbonate Platform"* Page 19	10
14	15 **HGS International Dinner Meeting** by Allan Kean *"Reducing Geologic Risk in Frontier Deep Water Explorations Settings, Suriname, S.A."* Page 21	16 **HGS Northsiders Luncheon Meeting** *"Wireline Logging Conveyance Systems"* Page 25 **HGS Environmental and Engineering Dinner Meeting** *"Cultural Resource Management and the Earth Science Professional: A Houston Area Perspective"* Page 43	17
21	22	23	24
28	29 **HGA and GAH Luncheon** Style Show *Junior League Grand Ballroom* Page 64 **HGS North American Dinner Meeting** by Phil Martin *"Fishing with Dynamite: 3D Tips and Trip-ups in the Gulf Coast"* Page 45	30	31 **HGS General Luncheon Meeting** by Lee Billingsley *"Exploiting the Devonian Reservoir in Oates SW Area, Western Delaware Basin, Texas"* Page 47



GeoEvents

Thursday Friday Saturday

4	5	6
11	12	13
18	19	20 **Association of Environmental and Engineering Geologists Texas Section Winter Meeting** *"Geologic Aspects of Coastal Subsidence and Height Modernization"* Northwest Forest Conference Center Cypress, Texas Page 57
25	26	27 **NOW you can make your reservations on-line at www.hgs.org**

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–Friday, February 1-2
NAPE Expo
George R. Brown Convention Center

Monday, February 12
HGS General Dinner
Speaker TBA

Monday, February 19
Joint International & North American Explorationists Dinner
by Larry Lawyer, "Arctic Paleogeography"

Tuesday, February 20
HGS Northsiders Luncheon
Speaker TBA

HGS Environmental & Engineering Dinner
by Todd Johnson, "Hurricane Katrina Emergency Response"

Wednesday, February 28
HGS General Luncheon
Speaker TBA

Review of 2006 HGS Grand Canyon Trip

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During the Devonian the North American continent drifted through a warm, coral bearing equatorial sea. Evidence for this is found in rocks from widely separated areas: the early Devonian in New York, the middle Devonian of the Michigan Basin, and the late Devonian in the Williston Basin in northeastern Montana. One can speculate about how the North American craton (rotated 90° from its current orientation) drifted through a warm climatic zone with a limestone containing the same type of fauna and flora in these widely separated areas.

Figure 9. Travertine in Havasu Creek, day 7. Many pools like this create numerous photo opportunities. Photo by Dave Lazor.

The overlying Mississippian Redwall Limestone is the massive cliff former visible in the canyon for much of the trip. It contains many marine fossils such as ammonites, corals, crinoids, and brachiopods. The surface of the Redwall is stained red by leaching of iron from the overlying Pennsylvanian Hermit Shale. After deposition of the Redwall Limestone, the area was again exposed and subjected to ground water leaching that formed a karsted topography on

continued on page 39

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Figure 10. North Canyon and exfoliation jointing in sandstone due to the rapid unloading of overburden. Photo by Robert Carpenter.

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the top of the Redwall and many caverns within it. Vasey's Paradise, seen during day 2, is one of the solution caverns that produces a waterfall at river level (Figure 4). The upper Paleozoic rocks (Pennsylvanian and Permian) were deposited in near-marine and non-marine settings probably in a climatic zone near the equator. Reptile tracks in the Coconino Sandstone (Permian) are viewed during the first stop of day 1 (Figure 5).

Just east and south of the Grand Canyon and also in Zion National Park are Mesozoic rocks that were deposited in a non-marine to a marginal marine setting. In the Petrified National Forest in northeastern Arizona, petrified trees found in Triassic rocks and the well-known cross-bedded dunes of the Jurassic Navajo Sandstone in Zion National Park are characteristic of the non-marine depositional setting. These non-marine rocks may also be seen in some of the state parks west and northeast of Las Vegas, Nevada. Researchers have estimated that at least 2000 feet of Mesozoic rocks once existed in the Grand Canyon area and have since been removed by erosion (Beus and Morales, 1990). Some of these rocks just south of the canyon have abundant dinosaur tracks (Lazor, personal observation).

The Grand Canyon is probably no more than 6 million years old at its mouth at Lake Mead because sedimentary units of that age cross the canyon (Beus and Morales, 1992). The Colorado Plateau was uplifted much earlier than 6 million years ago, perhaps 30 million years ago, so the question arises as to how the Colorado River could cut through an uplifted area instead of going around it. Headward erosion from the Gulf of California and stream piracy most likely were involved.

The youngest rocks other than hill wash and travertine are the basaltic lava flows near Lava Falls (mile 179). These approximately one million year old flows have dammed the Colorado River at least twelve times, with river gravels often visible between lava flows. Columnar jointing, which is related to the cooling history of the lava and the thickness of the flow, is apparent along the river and in some of the side canyons near Lava Falls.

Additional Comments, Observations and Information

Glen Canyon dam eliminated flooding and cut off most of the sediment supply to the Colorado River, (limited now to the Paria and Little Colorado tributaries downstream from the dam. A controlled flood (8,000 cfs to a peak of 45,000 cfs) of the Colorado River below Glen Canyon Dam was conducted for six days beginning March 26, 1996. The goals were to see whether flooding would scour the river bed and redeposit sediment on bars and beaches along the channel, and to observe how rocks move along the river bed during flooding. Scouring and deposition did occur as predicted during the first three days of flooding, but erosion and redeposition continued even as flow was cut back. During the summer of 1996 HGS river runners were able to observe the river cutting the recently deposited point bars where cross bedding very similar to that seen in the adjacent Cambrian Tapeats Sandstone. Along the Little Colorado River during day 3 one can see cross bedding in recent sediments that appears to be identical (but on a smaller scale) to that seen in the adjacent Tapeats Sandstone. The Little Colorado River offers the first warm water in which to play (Figure 6).

As groundwater percolates through the carbonate rocks and rain-water washes over the rocks, carbonates are dissolved and redeposited down slope as travertine. In some side canyons one can see twigs and leaves embedded in the travertine. Blocks of travertine are torn loose by flash floods and mud flows. Some of these clogged the drainage of side canyons, one of which is Elves Chasm, a "clean up" canyon on day 5 (Figure 7). The Little Colorado River and Havasu Creek contain excellent examples of recent travertine deposition and flash flood debris.

The exposures of rock and the continuous effect of weathering and erosion make the Grand Canyon of Arizona a "hands on" example of nearly every topic covered in a college level introductory geology course. During the trip in 2000 there were nine PhD geoscientists who could not agree upon the origin of specific features seen in the canyon. This demonstrates that the trip is even challenging to those with more than an intro exposure to geology. Even the origin of the exfoliation jointing (Figure 9) seen in North Canyon (mile 20.5) generated more than one hypothesis.

Most of the participants of the 2006 trip and those from previous trips have enthusiastically stated that the Grand Canyon river trip is the best field trip they have ever taken. Numerous folks have gone more than once. ■

References

Beus, Stanley S. and Morales, Michael, editors, 1990. Grand Canyon Geology; Oxford University Press and University of Northern Arizona Press, 518 p.

Euler, Robert C. and Tikalsky, Frank (Editors), 1992: The Grand Canyon, Intimate Views, The University of Arizona Press, 114 p.

Lazor, J.D., 1971: Petrology and Subsurface Stratigraphy of the Traverse Formation (Middle Devonian) in Northern Indian,. Ph.D. Dissertation, Indiana University.

Additional information regarding the geology of the Grand Canyon may be obtained by searching "Grand Canyon Geology" on the internet.

Tuesday, January 16, 2007

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; or, by calling 713-463-9476 or by e-mail to Joan@hgs.org (include your name, meeting you are attending, phone number and membership ID#).

by ***James G. Foradas,***
HRA Gray & Pape, LLC.

Cultural Resource Management and the Earth Science Professional: A Houston Area Perspective

Professional geologists are often involved in the National Environmental Protection Act (NEPA) or other projects that involve a Cultural Resources Management (CRM) component. One common example is an archaeological survey of a project area (e.g. a well pad site) to partly satisfy requirements for a U.S. Army Corps of Engineers wetland permit. Geologists and archaeologists typically work on different aspects of NEPA projects; therefore many geologists may not be aware of how the business of geology affects and is affected by the CRM process. However, an understanding of CRM is not just useful for the environmental geologist. CRM data can prove useful in understanding the local geology and the historical development of geology and related industries in a region. CRM can be a useful tool for teaching all levels of earth science, and can prove helpful in community service such as the work that HGS is doing with Houston's Project Respect to preserve and restore historic cemeteries across Texas.

RM data can prove useful in understanding the local geology…and the industries dependent on it.

This talk is aimed at introducing CRM to the professional geological community in Houston, including earth science teachers. It will begin with a brief introduction to CRM regulations, principles and processes, then use selected case studies from the greater Houston area to illustrate how geologic data have been used to facilitate CRM projects, how geologists and archaeologists can work together to streamline NEPA projects, and how the CRM process benefits the education community.

The focus of this presentation is to demonstrate how Houston's earth science community can benefit from CRM. It is hoped the lecture will provide impetus for developing a more comprehensive HGS Continuing Education Committee workshop on the subject. ■

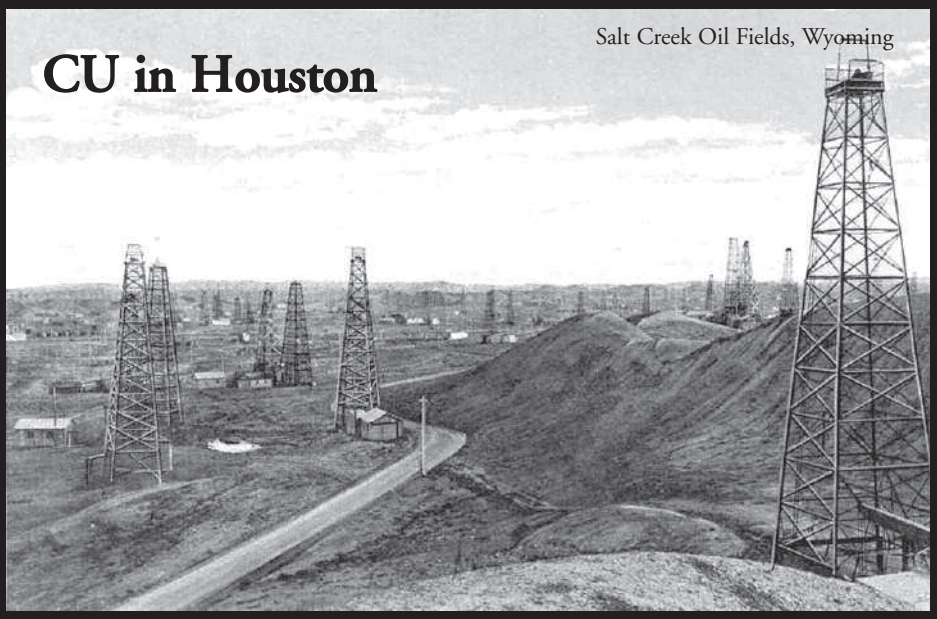
Biographical Sketch

Jim Foradas, a Senior Principal Investigator in geoarchaeology for the Houston office of HRA Gray & Pape, LLC, has over 20 years of experience in archaeological geology, and is a recognized researcher in the fields of North American prehistory, geoarchaeology, and archaeometry. He holds a BS in Geology (1983) and a PhD in Anthropology (1994) with emphasis on archaeological geology from Ohio State University, and an AS in Ocean Technology from the College of Oceaneering (1999). He is a Registered Professional Archaeologist (RPA) and a member of AIPG and an active member of HGS where he currently serves as temporary chair of the Continuing Education Committee. He also serves on the board of directors for San Antonio based Friends of the Rio Verde Basin and is an archaeological advisor to HGS and Houston's Project RESPECT.

Jim has worked in cultural resource management since 1994, and was also a university lecturer in anthropology and earth science (1994-2001). His major contribution to geoarchaeology is the development of a non-destructive method of characterizing prehistorically utilized chert sources based on normative mineral compositions. The geochemical approach is summarized in Foradas (2003).

The research presented for this talk is largely based on the result of CRM related projects he has been involved with since moving to the Houston area in 2004. However, the approaches recommended are based on over two decades of experience as a researcher and educator in the earth and anthropological sciences as well as a decade of CRM experience.

Foradas, James, 2003: Chemical sourcing of Hopewell bladelets, in P.N. Kardulias and R.W. Yerkes (eds.), Written in Stone: The Multiple Dimensions of Lithic Analysis, Lexington Books, Lantham, MD.



University of Colorado Alumni Reception

Please join us at the

Hilton of Americas
1600 Lamar
Houston, Texas

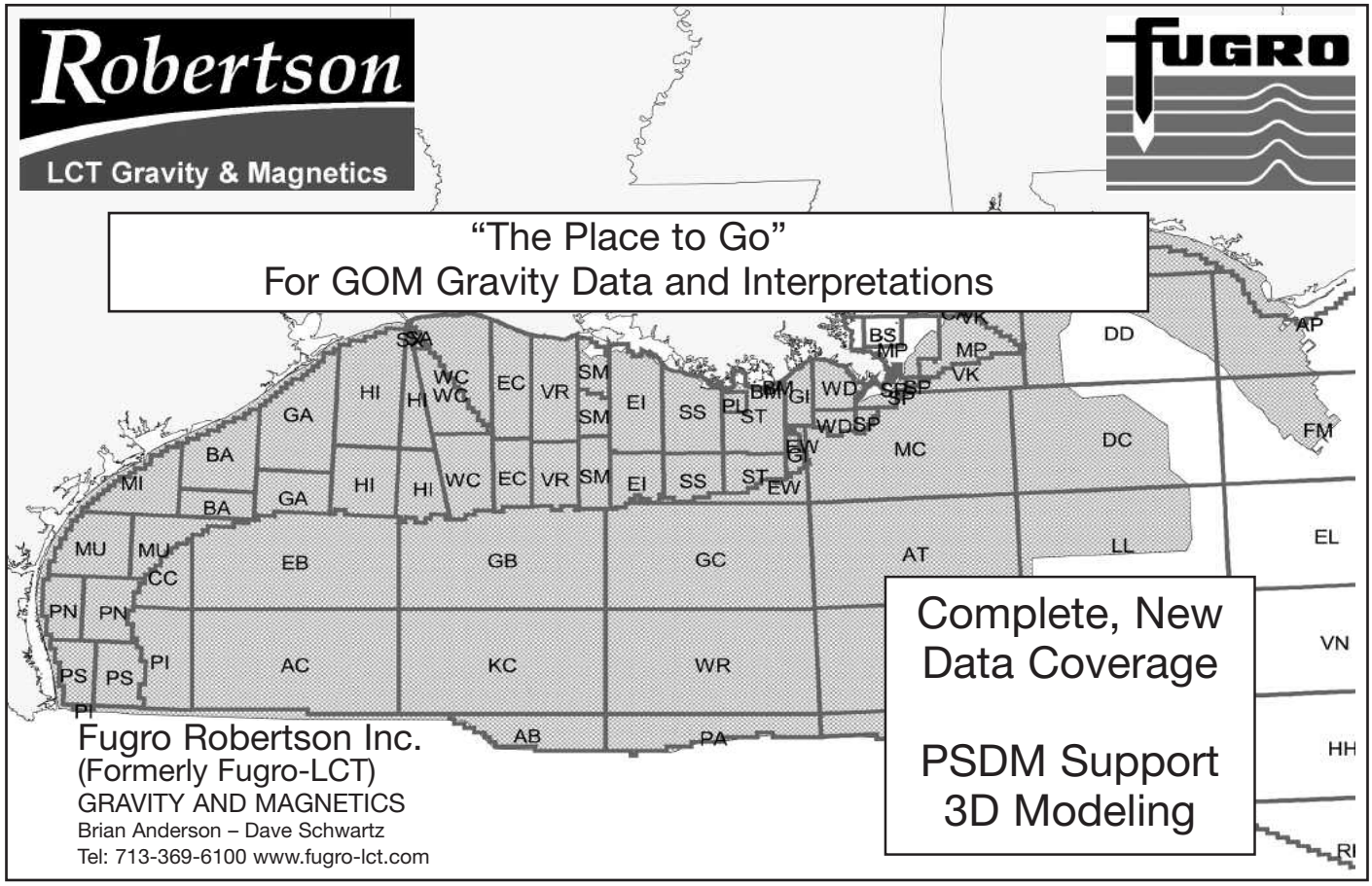
4 - 7 p.m.
Wednesday,
January 31, 2007

Sponsored by:

University of Colorado – Department of Geological Sciences

RSVP: Quentin German – *CUgeologist@yahoo.com* – **303-250-7877**

Wednesday, January 31, 2007 • 4 to 7 p.m. • Hilton of Americas • Houston



Monday, January 29, 2007

Westchase Hilton • 9999 Westheimer
Social 5:30 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#).

HGS North American Explorationists Dinner Meeting

by ***Phil Martin***

Fishing With Dynamite: 3D Tips and Trip-ups in the Gulf Coast

3D seismic is the critical technology for almost all wells drilled in the Gulf Coast. Although it has been around for 30 years, its use now means the difference between a fantastic or forgettable track record. 3D data and technology were once the privilege of large oil companies but are now accessible to all. As frosting on the cake, 3D provides an excellent bridge between the geological, geophysical, engineering and financial sectors of the energy industry.

3D seismic provides an excellent bridge between the geological, geophysical, engineering and financial sectors of the energy industry.

Of course track records of companies using identical 3D data and technology can vary greatly, depending on their interpretational skills. And although 3D alone can suffice in some trends, a convergence of multiple geoscience skills is necessary in others.

This presentation will share lessons learned in the hits and misses of one company as it chalked up an 85% success ratio for 36 3D prospects drilled from 2005 to 2006 in Texas and Louisiana. ■

Biographical Sketch

Phil Martin is third generation in earth resources and grew up in the oil patch. His father is a geologist and active SIPES member who worked for Shell before becoming an independent. His grandfather was a mining engineer, and his great-grandfather owned gold mines near Gold Hill, Oregon.

After graduating with a BS and MS in geology from LSU and UL, Phil went to work as an exploration geologist for Union Texas Petroleum. After a few years he became an independent. His company, New Century Exploration, Inc., is an active operator in Texas and Louisiana. Almost all of their recent success is a result of their 3D seismic expertise.

Phil sits on the boards of SIPES, Houston Energy Council and Geological Data Library. He is an active member of AAPG, Houston Geological Society, Geophysical Society of Houston, SEG, Onshore Exploration Independents and Houston Producers Forum.

Wednesday, January 31, 2007

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

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#).

HGS General Luncheon Meeting

*by **Lee Billingsley***
Vice-President for Abraxas Petroleum Corporation and current AAPG President

Exploiting the Devonian Reservoir in Oates SW Area, Western Delaware Basin, Texas

The Oates SW field area is located in southwestern Pecos County, Texas, in the southwestern portion of the Delaware basin. The dominant producing reservoir in the area is simply called Devonian, but it is probably Devonian-aged chert in the Thirtyone Formation. Regional structure is NE dip into the basin with some NW-SE trending faults. The Oates SW area is flanked by large structural closures that have produced gas from the Devonian and adjacent reservoirs. These fields include: Perry Bass, 26 BCF from nine wells; Oates NE, 266 BCF from 25 wells; and Pikes Peak, 48 BCF from eight wells.

In contrast to the surrounding fields, Oates SW consists of four small structural closures that vary in size from about 320 to 1280 acres. Abraxas acquired 3-D seismic data to refine the structural interpretation and guide potential horizontal well bores. Each closure has from one to three vertical wells, with each well producing from 0.2 to 2.4 BCFG from the Devonian chert. Production from each vertical well near the top of closures roughly correlates to Devonian reservoir quality determined from log analysis. However, a comparison between calculated original gas-in-place and actual production for each closure indicates a relatively low recovery factor. All the vertical wells exhibited high rates of water production late in their productive history.

Abraxas has drilled three horizontal well bores within the Devonian chert on separate closures. Results span the spectrum of potential outcomes. The best well has produced at a constant rate of 8 MMCFD and the worst well only makes 150 MCFD. The third well is a re-entry of a vertical well, which had produced 1.8 BCFG. Abraxas drilled horizontally within the Devonian chert. Initially, the well produced 100% water, but gas rates eventually increased. Currently, the well produces at relatively constant rates of 700 MCFD and 4000 BWPD. The source of the water production is unknown. It could be from: 1) near well bore, but not from the Devonian interval, 2) micro-fractures within the Devonian that are connected to deeper water sources like the Ellenburger, or 3) near well bore water coned upward during production form the vertical well bore.

Detailed correlation of logs indicates an unconformity at the top of the Devonian chert. Consequently, the porous Devonian chert interval is thinner in structurally high wells. This interpretation may explain the variable reservoir quality of the three wells, based on the projected trajectory of the horizontal well bores.

As with other horizontal Devonian chert fields, results are highly variable from well-to-well. Overall the economics of the play in Oates SW have been favorable, but much still needs to be learned in order to repeat the success. ■

Biographical Sketch

Lee Billingsley received a BS in Geology from Texas A&M in 1975, an MS in Geology from the Colorado School of Mines in 1977, and a PhD in Geology from Texas A&M in 1983. He began his oil and gas career in 1976 with Tenneco Oil Company in Denver, and later worked with American Quasar Petroleum (Denver) and Monterrey Petroleum Corporation (San Antonio). From 1983-1998, he was President and Founder of Sandia Oil & Gas Corporation, until joining Abraxas Petroleum Corporation in 1998. He is currently Vice-President of Exploration.

Dr. Billingsley is a member of many regional and national professional societies, and he has received numerous awards including the AAPG Distinguished Service Award (1997) and Certificate of Merit (1999), as well as the GCAGS Distinguished Service Award (1998). He served as President of the South Texas Geological Society (1985-86) and as General Chairman of the 2004 GCAGS Convention in San Antonio. Within AAPG, he has held several positions including Treasurer, member of House of Delegates, Associate Editor of the *Bulletin*, and Division of Professional Affairs Secretary. Currently, he is AAPG President (2006-2007).

In The News continued from page 7

gasses, particularly CO_2 which has been increasing at rates unprecedented in geological history, with the exception of extraordinary events like meteoric impacts. While there is considerable uncertainty in some aspects of model projections of climate changes, there is essentially consensus among those scientists, scientific societies, and government agencies actively conducting research in this area, that significant and possibly catastrophic changes in climate will occur if the rate of increase of CO_2 and other greenhouse gasses continues at the present level.

Both position statements are reproduced in their entirety for the sake of fairness. Members are encouraged to read them carefully and with an open mind. Should any member feel so motivated, both technical/scientific articles and letters to the editor are encouraged. Scientific contributions should be written with a level of rigor and formalism consistent with the AAPG *Bulletin*.

AAPG
Policy Statement: Climate Change Policy

The American Association of Petroleum Geologists, an international organization of over 30,000 earth scientists, supports expanding scientific climate research into the basic controls on climate, specifically including the geological aspects of climate change. This research should be undertaken by appropriate federal agencies involved in climate research and their associated grant and contract programs. Such support includes major research efforts into potential effects of decreasing as well as increasing temperatures and the mitigation of such effects. This research is important to sustain the ability of agriculture to feed the growing global population as well as to understand the effects of a colder climate upon society.

Geologists who study past climate variations understand that current climate warming projections fall well within documented natural variations in past climate. Therefore, for scientific reasons, the American Association of Petroleum Geologists does not support placing a carbon tax upon fossil energy sources as a tool to reduce carbon dioxide emissions, nor do we support any implementation of the Kyoto Protocol prior to Senate ratification.

Rationale

One of the most contentious debates in American public policy today encompasses proposals to restrict emissions of the minor atmospheric gas carbon dioxide in order to mitigate a perceived human influence on global climate. Current proposals (Kyoto Protocol signed by the executive branch of the U.S. government, but not ratified by Congress) would federally tax crude oil at the rate of about $43.50 per barrel (1). No reduction in existing levels of carbon dioxide in the atmosphere would result from this massive transfer of wealth from the private sector into the federal government.

Recognizing the potential impact on the United States and world economy of such taxation and restriction of energy use, it is important that greenhouse theories be tested thoroughly and quickly.

Scientific examination of the government case for such draconian taxation does not support the supposition of human-induced global climate change; in fact, the study resulted in recognition that the supposition is neither provable nor disprovable. The following observations are germane to the position:

Scientific research has been stimulated by the proposal. Recently published research results do not support the supposition of an anthropogenic cause of global climate change (2).

Detailed examination of current climate data strongly suggests that current observations do not correlate with the assumptions or supportable projections of human-induced greenhouse effects.

Background

Geologists know:

Climate is constantly changing, and has varied significantly over human history. Climate changes over any time scale chosen, whether as small as a decade or as long as a geologic era.

Natural variability has been demonstrated to exceed any supportable estimate of human-induced variability.

Earth is still emerging from the Little Ice Age (A. D. 1250 - 1850). Significant rises in global temperature are a predictable consequence. The current level of global warming is real and natural.

Geologic controls on climate are significant. Long term changes can be demonstrated to occur congruently with geologic tectonic changes. Little is truly understood of the controls on short term changes. Solar variability, for instance, is significant in centennial to millennial changes, among other possible controls that should be examined.

Attempts to engineer Earth's very complex climate before understanding natural controls on climate are risky, if not impossible.

Summary

Science requires that all aspects of theory be investigated and that assumptions be tested.

Human-induced global temperature influence is a supposition that can be neither proved nor disproved. It is unwise policy to base stringent controls on energy consumption through taxation to support a supposition that cannot be substantiated.

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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.

HGS Welcomes New Members

Effective November 7, 2006

ACTIVE MEMBERS

Irene Arango
Nicholas Brooks
Grace Castellini
Glen Gatenby
Alfred Gomez
Peter Gross
Jennifer Hoyt
Michael Hsieh
Yu-Ting Huang
Gerhart Hunter
Paul Larson
Ivana Novosel
Nancy Rodriquez
Kerry Swain
Ching-Lu Tien
Kenneth Wantland
Cristen Ward
Jose Yilalys

ASSOCIATE MEMBERS

Kitty Duhon
Jay Heidecker

EMERITUS MEMBER

Ben Buongiorno

Welcome New Members

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Climate naturally varies constantly, in both directions, at varying rates, and on many scales. Warming events have been historically good for most human society, while cold events have been deleterious to much of society. It is vital that climate research to examine the effects of a colder climate also be supported. Critical target areas of this research should include the potential impact of climate change on food production. Further research should concentrate on mitigation techniques to combat any serious effects of either colder or warmer climate, naturally or artificially caused, on the ability of the world to feed itself.

The AAPG urges that any actions to implement or to ratify the Kyoto Protocol and any future declarations of climate policy be delayed until there is better understanding of present climate and the impacts of policy implementation, as well as some provision for mitigating errors in policy. There is no current viable substitute for petroleum-based fuels in the world's energy budget and economy.

The Energy Information Administration has estimated that implementation of the Kyoto Protocol would result in a carbon tax of $348 per ton of carbon (E.I.A. SR/OIAF/98-30). Murphy Oil Company estimates of about .12 ton of carbon per barrel of oil (or 8 barrels per ton of carbon) (Oil and Gas Journal, Nov. 2, 1998, p.30) results in an estimated $43.50 carbon tax per barrel of oil.

All geologists who are interested in the climate debate probably should read two books:
Moore, Peter D., Bill Chaloner, and Philip Stott, 1996, Global environmental change: Blackwell Science, Oxford, England, 244 p.
Lamb, H. H., 1995, Climate, History, and the Modern World: 2nd Ed., Routledge, NY, 433 p.

Three recent papers of interest to scientists are:
Bluemle, J. P., J. M. Sabel, and W. Karlen, 1999, Rate and Magnitude of Past Global Climate Changes: Environmental Geosciences, v. 6, n. 2, p. 63-75.
Fischer, H., M. Wahlen, J. Smith, D. Mastoianni, and B. Deck, 1999, Ice Core Records of Atmospheric CO2 Around the Last Three Glacial Terminations: Science, v. 283, p.1712-1714.
Fan, S., M. Gloor, J. Mahlman, S. Pacala, J. Sarmiento, T. Takahashi, and R. Tans, 1998, A Large Terrestrial Carbon Sink in North America Implied by Atmospheric and Oceanic Carbon Dioxide Data and Models: Science, v. 282, p. 442-446.
(This information was prepared and reviewed by certain scientific members of the Governmental Affairs Committee of the Division of Professional Affairs, a Division of the American Association of Petroleum Geologists, for use by its members and other interested parties.)

The AAPG Policy Statement can be viewed at http://dpa.aapg.org/gac/papers/climate_change.cfm *with permission from the AAPG*

Note: The Geological Society of America position statement on climate change can be viewed at http://www.geosociety.org/aboutus/pos10_climate.pdf

AGU
Human Impacts on Climate
Adopted by Council December, 2003

Human activities are increasingly altering the Earth's climate. These effects add to natural influences that have been present over Earth's history. Scientific evidence strongly indicates that natural influences cannot explain the rapid increase in global near-surface temperatures observed during the second half of the 20th century.

Human impacts on the climate system include increasing concentrations of atmospheric greenhouse gases (e.g., carbon dioxide, chlorofluorocarbons and their substitutes, methane, nitrous oxide, etc.), air pollution, increasing concentrations of airborne particles, and land alteration. A particular concern is that atmospheric levels of carbon dioxide may be rising faster than at any time in Earth's history, except possibly following rare events like impacts from large extraterrestrial objects.

Atmospheric carbon dioxide concentrations have increased since the mid-1700s through fossil fuel burning and changes in land use, with more than 80% of this increase occurring since 1900. Moreover, research indicates that increased levels of carbon dioxide will remain in the atmosphere for hundreds to thousands of years. It is virtually certain that increasing atmospheric concentrations of carbon dioxide and other greenhouse gases will cause global surface climate to be warmer.

The complexity of the climate system makes it difficult to predict some aspects of human-induced climate change: exactly how fast it will occur, exactly how much it will change, and exactly where those changes will take place. In contrast, scientists are confident in other predictions. Mid-continent warming will be greater than over the oceans, and there will be greater warming at higher latitudes. Some polar and glacial ice will melt, and the oceans will warm; both effects will contribute to higher sea levels. The hydrologic cycle will change and intensify, leading to changes in water supply as well as flood and drought patterns. There will be considerable regional variations in the resulting impacts.

Scientists' understanding of the fundamental processes responsible for global climate change has greatly **In The News** *continued on page 53*

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improved during the last decade, including better representation of carbon, water, and other biogeochemical cycles in climate models. Yet, model projections of future global warming vary, because of differing estimates of population growth, economic activity, greenhouse gas emission rates, changes in atmospheric particulate concentrations and their effects, and also because of uncertainties in climate models. Actions that decrease emissions of some air pollutants will reduce their climate effects in the short term. Even so, the impacts of increasing greenhouse gas concentrations would remain.

The 1992 United Nations Framework Convention on Climate Change states as an objective the "...stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system." AGU believes that no single threshold level of greenhouse gas concentrations in the atmosphere exists at which the beginning of dangerous anthropogenic interference with the climate system can be defined. Some impacts have already occurred, and for increasing concentrations there will be increasing impacts. The unprecedented increases in greenhouse gas concentrations, together with other human influences on climate over the past century and those anticipated for the future, constitute a real basis for concern. Enhanced national and international research and other efforts are needed to support climate related policy decisions. These include fundamental climate research, improved observations and modeling, increased computational capability, and very importantly, education of the next generation of climate scientists. AGU encourages scientists worldwide to participate in climate research, education, scientific assessments, and policy discussions. AGU also urges that the scientific basis for policy discussions and decision-making be based upon objective assessment of peer-reviewed research results.

Science provides society with information useful in dealing with natural hazards such as earthquakes, hurricanes, and drought, which improves our ability to predict and prepare for their adverse effects. While human-induced climate change is unique in its global scale and long lifetime, AGU believes that science should play the same role in dealing with climate change. AGU is committed to improving the communication of scientific information to governments and private organizations so that their decisions on climate issues will be based on the best science.

The global climate is changing and human activities are contributing to that change. Scientific research is required to improve our ability to predict climate change and its impacts on countries and regions around the globe. Scientific research provides a basis for mitigating the harmful effects of global climate change through decreased human influences (e.g., slowing greenhouse gas emissions, improving land management practices), technological advancement (e.g., removing carbon from the atmosphere), and finding ways for communities to adapt and become resilient to extreme events.

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The AGU Policy Statement can be accessed at:
http://www.agu.org/sci_soc/policy/positions/climate_change.shtml

Permissions: Members everywhere are encouraged to help inform the policy making process in their home locales with thoughtful presentation of scientific viewpoints. Council adoption of position statements is one way that the Union can assist in this process. Any member may use an AGU policy statement in discussions with local or national policy makers as an official statement of the Union. If you use excerpts from a statement, then you should not attribute those as a Union position. Societies anywhere may use an AGU position statement with or without attribution as a basis for developing their own statements.

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ALSO IN THE NEWS

Texas to build 17 New Coal-Burning Power Generating Plants

You probably know that utility companies are planning to build 17 new coal-burning and one new petroleum coke power generation plants in Texas over the next four years Goodwyn, 2006). According to industry representatives, the new plants will take advantage of recent technology that lowers regulated pollutant emissions by 20% over existing facilities. Texas governor Rick Perry strongly backs this proposal and has issued an executive order fast tracking state permits required for approval.

Several environmental groups are up in arms because the new plants will double the amount of CO_2 released into the atmosphere. Currently, CO_2 is not considered a dangerous pollutant by the Environmental Protection Agency (EPA) and is not regulated, despite scientific consensus that the gas is the major cause of global warming.

Dallas mayor Laura Miller and Houston Mayor Bill White are leading a coalition of Texas mayors, newspaper editors and environmentalists in strong opposition to the plants. They want the plants to use an available but costlier new technology that reduces harmful emissions by from 70% to 90% over current levels. Without the new technology, the new plants will emit an additional amount of CO_2 equivalent to that of 19 million automobiles.

A lawsuit is before the Supreme Court to require the EPA to regulate CO_2 as a dangerous pollutant, something the EPA has resisted for a number of years.

Goodwyn, Wade, 2006: Critics Blast Texas Plans for New 'Dirty' Coal Plants, National Public Radio, All Things Considered, September 25, 2006. Viewed December 3, 2006 at: http://www.npr.org/templates/story/story.php?storyId=6110191.

New Island Discovered

You may have noticed in the Earthweek section of the November 20 *Houston Chronicle* the brief article about a yacht that spotted a newly emerged volcanic island while sailing from Tonga towards Fiji in the South Pacific. Mariners aboard the Maiken found themselves inexplicably in the midst of floating rafts of pumice that stretched for miles in all directions. The source of the pumice became clear when they came upon an uncharted volcanic island that was still steaming. The island was about a mile in diameter with four small peaks and a central crater emitting steam and an occasional burst of lava and ash.

The Difference Between Unknown and Uncertain

In a very interesting article in the November 7 Issue of *EOS*, Corinne LeQuere presents an analysis of the evolution of scientific models, particular earth system models, and describes three phases; the illusion, the chaos, and the relief. These three phases underlie the transition from unknown to uncertain to models that "approach the truth with some degree of confidence."

The initial or Illusion phase is characterized by the development of a new approach and initial publications of results that seem to be readily accepted as "truth" or take the place of truth. They take the place of truth because there usually are very few observations or data to either confirm or challenge the model. According to LeQuere there is also an unstated law of peer review that published results are true until proven wrong. In this initial phase it is much easier to reproduce, with minor changes, the published results than it is to disprove them. It is only when sufficient observations and hard data become available that the development of the model moves past the initial phase. An earth systems model that LeQuere believes is in this first stage is ocean carbon. Initial models indicated a small response of the ocean CO_2 "sink" to climate change. The initial models did not properly account for the effects of climate change on the ecosystem that in turn affects the CO_2 sink.

As new observations challenge the initial results, the model development enters the second phase, chaos. According to LeQuere it is in this stage that the most "creative and beneficial" work is done. Researchers are less inclined to simply run experiments or collect data to confirm the initial models and are driven to explore new territory, try new things to better understand the physical processes underlying the model results and the differences between those results and observation. LeQuere believes that terrestrial carbon models are now in the chaos phase. Some models predict outgassing of CO_2 from the land within 50 years while others predict the land will be a CO_2 sink long into the future.

The last phase in model development is the relief stage, where underlying physical processes are understood sufficiently well and there are enough reliable observations to constrain (establish the range of validity) of the models. LeQuere believes models of climate change are in the relief stage where they are rapidly moving towards reliability. Unknown has been replaced by uncertainty. Certain aspects of climate change such as the sensitivity of change in global temperature to increase in CO_2 are well understood because observations of temperature changes with volcanism offer essentially experimental data to test the model hypotheses and constrain the model predictions. Other aspects of climate change, such as the effects of CO_2 level change on the terrestrial biosphere, are not as well known and are in the unknown stage. **In The News** *continued on page 56*

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The point of all this is that there are scientific ways to look at every aspect of nature, even ways to look at science itself. We as scientists need to be aware of which models and predictions are rooted in good science and which are still little more than exercises in computer efficiency. What we must not do is go with our "gut" feelings, or with what is popular among our peers, or with what is advantageous to our careers. I am afraid the time for that has passed.

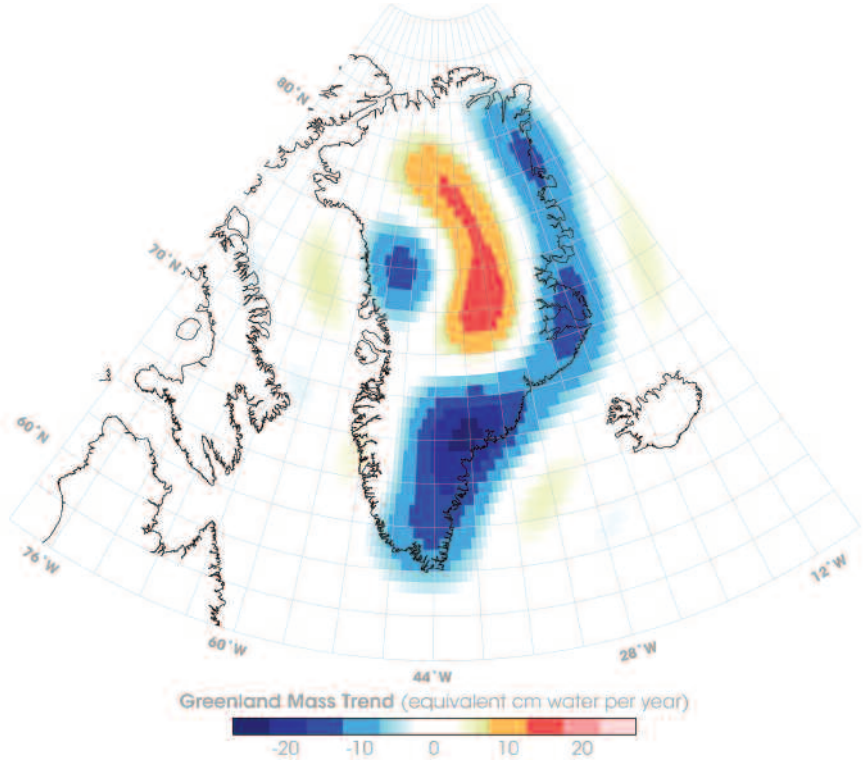

Figure 1. NASA satellite data has revealed regional changes in the weight of the Greenland ice sheet between 2003 and 2005. Low coastal regions (blue) lost three times as much ice per year from excess melting and icebergs than the high-elevation interior (orange/red) gained from excess snowfall. Credit: Scott Luthcke, NASA Goddard.

Greenland Loses Ice Mass

New results of a study by NASA (2006) using the Gravity Recovery and Climate Experiment (GRACE) satellites indicates a rapid loss of ice mass from the low coastal areas despite an increase in ice mass in the center of Greenland. During the 1990's the ice lost by the coastal areas was essentially balanced by snow gain in the interior. However, between 2003 and 2005 the low areas lost 150 gigatons of ice/year (41 cubic miles) while only 54 gigatons/yr (14 cubic miles) was gained in the interior. This translates to the island losing 20% more ice mass each year than it gained through increased snow accumulation in the interior. Most of the loss occurred in southeastern Greenland through melting glaciers and iceberg calving.

According to Jay Zwally of NASA's Goddard Space Flight Center, "This is a very large change in a very short time. In the 1990s, the ice sheet was growing inland and shrinking significantly at the edges, which is what climate models predicted as a result of global warming. Now the processes of mass loss are clearly beginning to dominate the inland growth, and we are only in the early stages of the climate warming predicted for this century (Cole, 2006)."

While still too early to be certain, the rapid increase in net ice loss in Greenland may indicate that ice loss is more sensitive to temperature and global warming than previously believed (Alley, et al., 2005). This is important because if both the Greenland and Antarctica ice sheets melted completely, sea level would rise about 65 meters (Cazenave, 2006).

Global Sea Level

For about the past 3000 years global sea level (GSL) has not changed very much, that is until the 19th century (Cazenave, 2006). Over the past 50 years GSL has been rising about 2 mm/yr. Since 1993 GSL has been rising about 3 mm/yr. Until very recently, the melting of the ice sheets has not caused much of the observed sea level rise. For example, Greenland's ice loss has caused only about 10% of the 3 mm/yr GBL increase over the past few years. Nevertheless, the contribution of melting glaciers and ice sheets represents the greatest uncertainty in projecting future GSL rise. If the recent apparent acceleration in Greenland ice sheet and worldwide glacier ice loss continues, we could see tens of meters of sea level rise in the not to distant future. ■

References

Alley, R. B., Philippe Huybrechts, and Ian Jughin, 2005: Ice-Sheet and Sea-Level Changes, Science, 21 October 2005, Vol. 310. no. 5747, pp. 456 - 460 DOI: 10.1126/science.1114613.

Cazenave, Anny, 2006: How Fast Are the Ice Sheets Melting? Accessed the Web site www.sciencexpress.org / 19 October 2006 / Page 1 / 10.1126/science.1133325 on December 6, 2006.

Cole, Stephen, 2006: Greenland Ice Sheet on a Downward Slide, Goddard Space Flight Center

Cole, Stephen, 2006: Greenland Ice Sheet on a Downward Slide, viewed online December 6, 2006 at: http://www.nasa.gov/vision/earth/lookingatearth/greenland_slide.html

NeoGeos

Who are today's NeoGeos? We are a diverse group of geoscience new hires embarking on their careers in the oil and gas industry. In fact, this young group will be fully transitioning into the petroleum industry workforce within the next 10 years as approximately 50% of today's experienced workers retire, according to a 2006 survey by AGI (2006). The AAPG 2006 salary survey reported that the average NeoGeo, with 0-2 years of experience and a B.S., M.S. or Ph.D. was paid $65,000 - $85,000 in 2005. Despite the general decreasing trend of graduating geoscience students (AGI, 2006a), companies are looking to hire more people. Considering the increasing energy consumption and concerns over decreasing reserves, our industry is in need of a strong and innovative workforce to keep the momentum going. Why not pursue a career in the geosciences? The rising price of oil and gas are leading to more job opportunities with higher salaries. In fact, the average cost of crude oil has risen 282% since 1990 (Energy Information Agency, 2006). Overall, geoscience salaries rose 8% in 2004 and 16% in 2005 (AAPG, 2006). Historically, the industry has always been cyclic, and we are now in a positive cycle. New developments in technology continue to provide NeoGeos with exciting and challenging opportunities. As we target deeper prospects and explore new regions, we're hoping this positive trend will continue for the next generation of NeoGeos. ■

NeoGeos are invited to join us for upcoming social and educational events. Please send an email to neogeos_houston@yahoo.com to join the mailing list or visit www.neogeos.org for more information.

AGI Geoscience Workforce, 2006: *Student and Faculty Employment Attitudes in the Geosciences*: www.agiweb.org

AGI, 2006a: *US Degrees Granted in the Geosciences 1973-2005*, AGI DGD Degrees Granted Survey, www.earthscienceworld.org/careers/stats/historicaldegrees.html

Energy Information Administration, 2006: *All Countries Spot Price FOB Weighted by Estimated Export Volume (Dollars per Barrel)*: http://tonto.eia.doe.gov/dnav/pet/hist/wtotworldw.htm

AAPG, 2006: *Salary Survey*: http://www.aapg.org/explorer/salary survey.cfm

Association of Environmental and Engineering Geologists Texas Section

Winter Meeting

Geologic Aspects of Coastal Subsidence and Height Modernization

Saturday January 20, 2007

Northwest Forest Conference Center · 12715 Telge Road · Cypress, Texas 77429 · info@northwestforest.com · 800-256-3548

The Texas Chapter of the Association of Environmental and Engineering Geologists is pleased to announce the Winter Meeting, *Geologic Aspects of Coastal Subsidence and Height Modernization*, to be held on Saturday, January 20, 2007 at the Northwest Forest Conference Center in Cypress, Texas.

Tentative Agenda

8:00 AM–9:00 AM	Registration And Continental Breakfast
9:00 AM–10:15 AM	Roy Dokka
10:15 AM–11:30 AM	Gary Jeffries
12:00 PM–1:00 PM	Lunch
1:00 PM–3:00 PM	Panel Discussion
6:00 PM–9:00 PM	Banquet—Presentation by Terry West, President, National AEG

The morning session features two speakers: Dr. Roy K. Dokka, Executive Director of the Center for GeoInformatics, Director of the Louisiana Spatial Reference Center, and Fuehan Endowed Professor of Engineering, Louisiana State University will present "Aspects of Coastal Subsidence."
Dr. Gary A. Jeffress, Director of the Conrad Blucher Institute for Surveying and Science, head of the newly created Texas Spatial Reference Center, and Professor of Geographic Information Science, Texas A&M University-Corpus Christi, will present "Texas Height Modernization Program."

The afternoon session features a panel discussion on what we as science professionals can do about the problem of coastal plain subsidence and to further Texas height modernization efforts.

There will be a banquet in the evening featuring a presentation by Dr. Terry West, Professor of Geology at Purdue University and AEG national president. For additional information regarding registration, location, and meeting agenda, please contact Cynthia Palomares at 512/239-6079 or cpalomar@tceq.state.tx.us.

On The Lighter Side

*by **Charles E. Revilla,** Member Emeritus, HGS*

Image of the Oil Man—by Robert Lee Bates

"One approach being considered for improving the image of geology is a dramatic television series showing the work of petroleum geologists. Let's drop in on a story conference as planning for the series gets under way. On hand are Mike, a petroleum geologist; Joe, a network representative and Fred, a scriptwriter.

JOE: Mike, I suggest that you give Fred and me a little better idea of the layout of the ballpark. For instance, what sort of dramatic situation is the petroleum geologist likely to find himself in?

MIKE: Well, I recall a few years back a real exciting problem developed over in the foothills belt. Monolithic Oil Co. was drilling a seismic high, but they didn't know just what it was. Some said a reef, others a fault block. Anyway, their geologists were really eager. By the time the drill got down to 3,000 feet the tension was fierce.

FRED (bewildered but hopeful): Did they get a gusher?

MIKE: Oh no. Monolithic's production people keep everything under control. But they did get the nicest little producer you ever saw, 900 BOPD on 3/8-inch choke through perforations at 3,185 to 3,210. And guess what?

JOE (feebly): What?

MIKE: The reservoir was a build-up in the Centipede Sandstone! Apparently a local offshore bar—totally unexpected! A real shocker!

FRED (his eyes glazed): Tell me, uh, Mike; was there any particular human interest connected with this, uh, this discovery? Any conflict? Any drama?

MIKE: I'll say there was! With this nice new addition to its reserves, the company found it could fire 14 geologists.

JOE: Perhaps something more gripping and, uh, upbeat should be presented on our first program. Didn't I read somewhere about a big oil strike up in the northern part of the state last year? Wasn't there something dramatic we could use there?

MIKE: You bet. One of the finest examples of truncation at the Sauk-Tippecanoe unconformity that I've ever seen. Why, when that first well came in, at 4,218 feet in fractured chert...

One can imagine the possibilities: What heartaches result from unexpected facies change, what joy from the saturated reef! It should be easy to introduce a bit of sex: Will John's wife hear about that promising little up-dip pinch-out that he's keeping to himself? Will the swamp buggy get the cuttings to the micropaleo lab in time to show that the well is high on the Heterostegina zone and will be a producer, thus saving the beautiful bayou maid from bankruptcy? (As to how she got into the act, what are we paying the scriptwriter for anyway?) Musicals might even develop—anyone care to write a catchy tune for a ditty that goes "Here I Am on the Downthrown Side Though It Wasn't My Fault at All"?*

I was deluged with favorable reactions to the above column (in this business three replies constitute a deluge). A Louisiana man clipped the column, circled the statement about the company that fired its geologists, and wrote the names of three offending companies in the margin. "Chemical and gas companies biggest offenders," he added. Another respondent refers to the hiring-firing situation as a "rotten mess." And a gentleman in Denver suggests the tune to "She Was Only a Bird in a Gilded Cage" for the words I composed, and then lyrics of his own, which unfortunately aren't suitable for a family magazine, being quite cynical and all. (Robert Lee Bates, Pandora's Bauxite, AGI, pp. 1-2, reprinted with permission of AGI)

Author's note: the fact that no one was forthcoming with a tune did not keep Bates himself from presenting the reader with the following "made for a musical" ditty referred to above:

Downthrown Love

"Our future stretched before us like a lovely fertile plain,
Tectonically stable with no evidence of strain,
When suddenly a fracture made a scarp 10 meters tall,
And I was left on the downthrown side though it wasn't my fault at all.

There's a vertical separation and never again we'll meet,
For there ain't no readjustment of 32-point-8 feet.
Our love's offset forever; its memory casts a pall-
You're up there and I'm down here on the gol-danged hanging wall.

That such things can be "normal" is sad but true, I guess,
Whenever two young lovers undergo tensile stress.
Our calm cratonic future is gone beyond recall,
And here I am on the downthrown side though it wasn't my fault at all."

Selection from Bates. Robert L., 1986: Pandora's Bauxit*e, American Geological Institute, pp. 88, reprinted with permission.*

Government Update

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

All Appropriate Inquiries Rule in Effect

The All Appropriate Inquiries Rule (AAI) officially went into effect on November 1, 2006. All Phase I Environmental Site Assessments should now be using this standard. Environmental Data Resources has several very good write-ups on the new standard. They can be found at: http://www.elabs7.com/c.html?rtr=on&s=mfv,u0p,1zm,gz93,5f1h,6f0q,9kgk

TCEQ News

New UST Rules Adopted

The Texas Commission on Environmental Quality (TCEQ) has adopted amendments to §§334.2, 334.5, 334.8, 334.71, 334.84, 334.301 - 334.303, 334.306, 334.310, and 334.313 without changes to the proposed text as published in the June 2, 2006, issue of the Texas Register (31 TexReg 4562). The purpose of the adopted amendments in this rulemaking is to incorporate into agency rules changes to statutes that were effective September 1, 2005. These rules are based on language in Senate Bill 485, House Bill 1987, and Senate Bill 1863 (Article 5) from the 79th Legislature, 2005, and are written to incorporate a change suggested by stakeholders during and following a meeting of the Petroleum Storage Tank (PST) Rules Advisory Group held November 29, 2005.

Texas Railroad Commission News

The Railroad Commission of Texas (RRC) proposes a number of amendments. They propose amendments to §§3.2, 3.5, 3.14, 3.25, 3.56, 3.58, and 3.80, 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.

The RRC proposes the amendments to §§3.5, 3.14, 3.25, 3.56, and 3.58 to delete references to old Forms P-1 and P-2, that have been replaced with Form PR, Monthly Production Report. The proposed 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 are being proposed.

The RRC further proposes to amend Table 1 in §3.80 to reflect proposed 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 proposes to amend 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 revision date is shown as "12/06" but would be changed on adoption to indicate the month the amendment actually becomes effective. In addition, the Commission proposes some minor clean-up 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.

For more information on these proposed amendments go to: http://www.sos.state.tx.us/texreg/sos/PROPOSED/16.ECONOMIC%20REGULATION.html#165

AGI Government Affairs Monthly Review (October 2006)

President Bush Signs New Space Policy "Freedom of action in space is as important to the United States as air power and sea power," asserts President Bush's sweeping new space policy. The policy refuses participation in future international treaties involving limits on space development, supports the use of space nuclear power systems consistent with U.S. interests and stresses U.S. space sovereignty.

The White House Office of Science and Technology Policy quietly unveiled the new National Space Policy on October 6, 2006. The document was authorized on August 31, 2006, four years after a 2002 Bush order to the National Security Council to assess space policy. It is the first revision in ten years, superseding the 1996 Clinton administration policy that paved the road for space weapons. Yet, while the Clinton initiative promoted space advancement, it did so only within international treaty boundaries. The newly revised policy, however, dictates, "The United States will oppose the development of new legal regimes or other restrictions that seek to prohibit or limit U.S. access to or use of space."

Space has become increasingly more important for the nation's economy and homeland security. Satellites have provided improved military navigation and communications, weather forecasting aptitude, cell phone service and GPS systems. Furthermore, advancements in **Government Update** *continued on page 60*

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space for China have caused the U.S. to consider national security more carefully. The new space policy gives the U.S. the flexibility needed to freely develop space weapons.

The policy has not been released without criticism. A report entitled Space Assurance or Space Domination: The Case Against Weaponizing Space by Michael Krepon, founding president of the Stimson Center, a Washington think tank on space policy, states, "When you weaponize space, you invite company. When we go first, others will come second. That is an absolute certainty."

A copy of the complete White House National Space Policy Document is available at: http://www.ostp.gov/html/US%20National%20Space%20Policy.pdf.

Interior Department Promises to Look at Flawed Offshore Leases

Stephen Allred, newly confirmed Assistant Secretary for Lands and Minerals Management of the Interior Department, has begun what Interior Secretary Dirk Kempthorne calls a "fresh look" at flawed offshore leases from 1998 and 1999 that lack critical price thresholds which would require companies to pay royalties when the price of oil rises beyond $36 per barrel.

The Minerals Management Service (MMS) has been negotiating with companies to ensure royalty payment on future production, however, but will not pursue the collection of about $1.3 billion already lost from the 1998 and 1999 agreements. $10 billion is predicted to be lost on these flawed leases in total, though MMS Director, Johnnie Burton, calls this estimate "speculative." She indicated that BP and Shell are close to reaching agreements that would result in royalty payments on their future production.

An Interior Department appropriations bill, H.R. 5386, has passed the House and would ban companies with 1998 and 1999 leases from future lease agreements unless they agree to negotiate. The Senate Appropriations Committee approved the Senate version of the bill that includes similar stipulations, but it has not yet been introduced to the full Senate for consideration. The Bush Administration, however, disapproves of any such action because they say it violates contract sanctity.

The full text of H.R. 5386 is available from Thomas at:
http://thomas.loc.gov/cgi-bin/bdquery/z?d109:h.r.05386:

Congressional Update on Ocean Science

The Joint Ocean Commission Initiative put their priorities on paper this June in a report entitled "From Sea to Shining Sea: Priorities for Ocean Policy Reform." The report was issued in response to a request by a bipartisan group of ten senators organized by Senator Barbara Mikulski (D-MD) for a list of the ten most urgent congressional actions needed to protect the marine ecosystem.

The top action items in the 50-page report included the creation of a national ocean policy mission statement, the codification of the National Oceanic and Atmospheric Administration (NOAA) Organic Act into law, the enactment of legislative actions promoting and funding ocean initiatives, the development of an Ocean Trust Fund in the U.S. Treasury and the incorporation of ocean-related science and education into innovation and competitiveness initiatives.

Since the report has been issued, progress has been made in Congress through the introduction of the NOAA Organic Act (H.R. 5450), which would codify and would lock the agency into a statutory law, instead of just having been created by an executive order, and the introduction of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act (S. 2012), which would reauthorize funding for more science-based management of U.S. fisheries to ensure their sustainability. Neither bill has been passed by Congress, although both are likely to be re-introduced in the next Congress in 2007.

Unfortunately, federal funding for ocean science appears to be getting murkier, even with several ocean policy reports in the past few years and interest in carrying out the policy recommendations of those reports within Congress. The House and the Senate are about $1 billion apart on fiscal year 2007 funding for NOAA and most of the differences are related to potentially significant decreases for research funding in the House bill. Congress has not yet conferred and passed a budget for NOAA, leaving the agency uncertain about their research resources. In addition, the National Science Foundation (NSF) has to deal with delays and higher costs to operate and refurbish their research vessels. The delays and costs are related to high oil prices, competition with commercial drilling needs and damage to the new Japanese research vessel, Chikyu, during a recent test. According to a news report in Science, NSF may not be able to refurbish the JOIDES Resolution as planned and this will further reduce ocean science research capacity.

A press release and a copy of the report are available on the Joint Ocean Commission web page at :
http://www.jointoceancommission.org/

The full text of H.R. 5450 is available from Thomas at:
http://thomas.loc.gov/cgi-bin/bdquery/z?d109:h.r.05450:

The full text of S. 2012 is available from Thomas at:
http://thomas.loc.gov/cgi-bin/bdquery/z?d109:s.02012:

House Democrats Release Recommendations for Katrina Recovery Effort

Democrats on the House Katrina Task Force, led by Chairman Gene Taylor (D-MS) and Vice-Chairman Charlie Melancon (D-LA), released a report entitled, "Katrina and Beyond: Recommendations for Legislative Action" on October 19, 2006, aimed at improvements on the slow-moving recovery effort in the U.S. Gulf Coast. The report recommends improved insurance policies, Federal Emergency Management Agency reforms, comprehensive hurricane protection programs and rapid coastal restoration.

The report states that the property insurance market should offer "all perils" disaster insurance and abandon its exclusion from federal anti-trust laws. Greater oversight of insurance companies should ensure that an independent party oversees wind and water damage assessment. Also, a policy of reinsurance should be implemented in which costs are predicted before disasters strike.

Furthermore, the report says that "recovery [is] too large for FEMA and its sluggish bureaucratic procedures." It recommends the transfer of the disaster recovery mission from FEMA jurisdiction to other agencies, suggesting that the Department of Housing and Urban Development should provide oversight on local government plans, the Department of Education should restore schools, and the Department of Health and Human Resources should establish sound public health procedures.

Given NOAA estimates that almost 160 million people – 53 percent of the total U.S. population – live in 673 coastal counties, the task force believes it is imperative to develop strategies to secure these communities.

A previous House report on Katrina by the House Select Bipartisan Committee (composed of only Republican members) to investigate the preparation for and response to Hurricane Katrina entitled "A Failure of Initiative" was released in February 2006.

The more recent 14-page report, authored by House Democrats is available at: http://www.house.gov/genetaylor/KTF.Katrina&Beyond.PBFormat.pdf

The earlier report, authored by House Republicans is available at: http://www.katrina.house.gov/

Congressional Seminar on Climate Change and Hurricanes

On October 20, 2006 the American Meteorological Society hosted four lectures in the Rayburn House Office Building entitled "Is Global Warming Impacting, or Expected to Impact, Hurricanes?" The seminar featured Dr. James Kossin, atmospheric research scientist for the Cooperative Institute for Meteorological Satellite Studies, Dr. Tom Wigley, senior scientist and director of the Consortium for the Application of Climate Impact Assessments at the National Center for Atmospheric Research, Dr. Greg Holland, director of the Mesoscale and Microscale Meteorology Division for the Earth-Sun Systems Laboratory at the National Center for Atmospheric Research, and Dr. Tom Delworth, leader of the Climate Dynamics and Prediction Group for NOAA's Geophysical Fluid Dynamics Laboratory.

Kossin focused on the importance of data consistency in hurricane records to accurately analyze the link between sea surface temperature (SST) rise and hurricanes. Holland identified an upward trend in SST over 100 years marked by a total 0.7°C rise. Wigley and Delworth presented their work with computer modeling systems that examined possible causes for SST rise. Both meteorologists concluded that anthropogenic forcing contributes to warming. Presentations are available for the public at: www.ametsoc.org/seminar.

Supreme Court to Clear the Air in November

The Supreme Court began their second term under the auspices of new Chief Justice, John G. Roberts, Jr. on October 2, 2006. On the docket for November are two cases related to the Clean Air Act. In Massachusetts v. Environmental Protection Agency (Docket No. 05-1120), Massachusetts Attorney General Tom Reilly, together with a coalition of 12 states, 13 environmental groups, New York City, Baltimore and American Samoa, will argue that the EPA should classify carbon dioxide as a pollutant and have the legal authority to regulate it and other heat-trapping greenhouse gases emitted from motor vehicles under the Clean Air Act.

In Environmental Defense et al. v. Duke Energy Corporation (Docket No. 05-848), environmental groups are seeking a ruling on the Clean Air Act's new source review requirements for upgrades made by Duke Energy. New source review requires power plants and factories to modernize air pollution controls when they install new sources of power that increase emissions. The Supreme Court is expected to make their rulings on both cases by mid-2007 and hopefully clear the air on requirements under the act. It is hoped that the Court can clear up any uncertainties about what compounds EPA can classify as pollutants and what requirements are expected of utilities when they upgrade facilities.

The merit briefs for both cases are available from the American Bar Association's Division for Public Education at: http://www.abanet.org/publiced/preview/briefs/home.html

Geological Society of America Updates Climate Change

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Position Statement

This month the Geological Society of America (GSA) posted a revised position statement on climate change. Their statement supports scientific findings that climate change is real, partly due to anthropogenic factors and will result in considerable consequences worldwide. In order to confront the issue, GSA promotes research, science-based policy, international planning, and the development of long-term strategies. The updated GSA statement is available at:
http://www.geosociety.org/aboutus/position10.htm.

Position statements on this topic and many others prepared by AGI and Member Societies are available at:
http://www.agiweb.org/gap/position_statements.html. ■

Seabird Exploration Opens New Office in Houston

Seabird Exploration Americas, Inc. is pleased to announce the opening of a new representative office in Houston, Texas. The office will be supervised by Brian Anderson, who has recently joined SeaBird as Vice President of Sales from his prior position with the Fugro organization in Houston, and has over 25 years experience in the geophysical contracting industry. The office will be located in West Houston in the Energy Corridor.

SeaBird is a world-wide multi-disciplinary seismic acquisition contractor, specializing in shallow water towed streamer 3D, 2D streamer, source boats and 4-Component Seabed Node data acquisition services.

For further information please contact Brian Anderson at 713-252-4680, or via email at Brian.Anderson@sbexp.com. ■

HGA/GeoWives continued from page 64

February comes along quickly. Make a date to play at Game Day on February 12th. Daisy Wood and Linnie Edwards will keep you busy at the Junior League tea room.

Looking back to the close of 2006, our auxiliary ended the year on a wonderful musical chorale and holiday luncheon. Put three past presidents together, Shirley Gordon, Norma Jean Bacho, and Norma Jean Jones, and watch a spectacular event emerge. The Dulles High School Honors Choir at the Sugar Creek Country Club performed "Tis the Season." Our December 1 event set the tone for the Holiday Season. Our members, guests and spouses were WOWED!

Sara Nan Grubb shared that GeoWives celebrated the year's end with a party for couples at the home of Sholeh Huber. Her lovely home was festive with music, activities and great food.

Make 2007 the year you encourage friends to join or rejoin for a spring of wonderful get-togethers with the Geological Auxiliary.

Questions? Contact President Sally Blackhall or 3rd Vice President Donna Parrish at DMCParrish@aol.com. ■

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
10575 Katy Freeway, Suite 290 • Houston, TX 77024
Telephone: 713-463-9476 Fax: 713-463-9160

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:

❑ Active AAPG Others: _____

Professional Interest:

❑ Environmental Geology
❑ International E&P
❑ North American E&P (other than Gulf Coast)
❑ Gulf Coast E&P (onshore & offshore)

Membership Directory Preference:

❑ CD Rom
❑ Printed

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. 2/7/2006

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**

The GeoWives and the Geophysical Auxiliary Join Together to Take a Trip to One of Houston's Treasures, the First Traditional Hindu Temple of Stone in the U.S.A.

by ***Lois Matuszak***

It was a beautiful but rather cool day as eighty one Geo-Wives, Geophysical Auxiliary members, husbands and guests joined together to travel to see the BAPS Shree Swaminarayan Mandir in Houston. It is the first traditional Hindu Mandir of stone and marble to be constructed in the United States. Created entirely according to ancient Hindu architectural manuscripts known as the Shilpa-Shastrsa and meeting all modern regulations and building codes, it was constructed in a mere 16 months from the day the first stone was laid. It has no steel or nails and is fitted together like a puzzle. Limestone from Turkey and marble from Italy were shipped to India where the individual pieces were hand carved. More that 33,000 carved pieces were shipped from India to Houston to build the beautiful Mandir. The Mandir opened on July 25, 2004. It is open to all the people of the world and to the faithful of all religions.

It was an awesome sight as you first see the temple. After we reached the temple we were asked to remove our shoes before entering the Mandir. Our guides, Naresh Gadhiya and Rao Agam described the meanings of the carvings in the different areas. This took about 30 minutes. We were allowed to attend a Hindu service which lasted eight minutes. The men were seated in the

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	

front and the women were asked to sit behind them in a roped off area. We were not allowed to take photos of anything but Naresh was kind enough to take pictures and gave us a photo CD for our history book. Another young man, Bala Krishna, helped us get a wheel chair for one of our members.

We visited the gift shop and found music, postcards and many exotic foods that most of us had never seen before. Afterwards we went for a buffet lunch at India's, on Richmond. It has won Marvin Zindler's Blue Ribbon Award. It was delicious but very spicy.

Our honored guest, Mrs. S. M. Gavai, wife of the Consul General of India to Houston spoke briefly about the many countries where she and her husband had lived and had represented India. She also told us about India. She wore a beautiful traditional sari adorned with many scenes and art of India. She encouraged us to visit India. ■

Geophysical Auxiliary of Houston

The New Year is upon us and promises to keep us entertained. Looking ahead to January 29, 2007 the GAH will be meeting and greeting the Houston Petroleum Auxiliary Council. Our combined groups are joining together for a glorious event chaired by our own Linnie Edwards. A style show by Talbot's will highlight clothing for all sizes and shapes that will slip into everyone's budget. Classic looks are their specialty. The Junior League Grand Ballroom will be the backdrop for this event. The luncheon served will be excellent as we've learned from past visits. Come one and all for a memorable afternoon. Keep an eye out for your invitation. RSVP early to be assured a seat. See you there!

The Winter NAPE exposition is upon us. It will be held on February 1 and 2 at the George R. Brown Convention Center in downtown Houston. Calling for all "Sally"'s Sweethearts" to say YES when asked to volunteer. Only your help will make check-in a breeze.

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