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Houston Geological Society
Volume 48 Number 7
March 2006

A Historical Overview of Pierce Junction and the History of Pierce Junction Oilfield

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In Every Issue

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Technical Meetings

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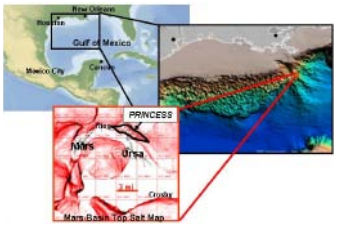

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Other Features

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About the Cover: Mt. Augustine Volcano aerial view taken on January 24, 2006, during a flight to measure gas, make visual observations, and collect thermal imagery. The on-island web camera was repaired and shows that the volcano continued to steam profusely after the last eruption. Seismicity at Augustine Volcano remained at low levels, but was still above background. Periods of quiescence and low-level seismicity during an eruptive phase are not unusual and have occurred during past eruptive episodes of Mt. Augustine in 1976 and 1986. The decline in seismicity does not necessarily mean that explosive eruptions have ended and they could, and did, resume with little or no warning. **Image Creator:** Cyrus Read. *Image courtesy of AVO/USGS.*

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by ***Dave Rensink***

From the **President**

Myths, Half-Truths and Other Bits of Trivia

I had hoped to debunk a few myths about the oil industry this month. Unfortunately, there are so many myths at both ends of the spectrum that it is difficult to know where to start. There seems to be an element of truth in most of them regardless of their orientation. In some cases, the element of truth may be very small. In other cases, it is a matter of semantics. Such as the "myth" that contends that production from the Arctic National Wildlife Refuge will do little to reduce our dependence on oil imports from Saudi Arabia; therefore, it does not justify exploiting a pristine wilderness. The first part of that statement is probably true on two levels. The United States imports more oil from Canada, Mexico and Venezuela than it does from Saudi Arabia, thus any imports that may be offset could be allocated across the board and the specific reduction on Saudi oil would be limited. In addition, any production that may ultimately come from the Arctic National Wildlife Refuge is several years in the future, if it ever comes, and would likely do more to offset the declining production of the lower 48 states and the North Slope than reduce imports. Hence, the myth is partly correct. It just depends on how you look at it. The probability that any myth could be convincingly debunked is probably low. Of course, long odds do not keep us from drilling wells, and they do not keep me from tilting windmills.

The probability that any myth could be convincingly debunked is probably low.

There are a couple of myths that can be addressed and at least partially debunked. The first is that the oil industry owns Washington, DC. Since money and influence are virtually synonymous in DC, this contention is probably based on the amount of political contributions that come from oil and gas sources. However, the $26 million the oil and gas industry contributed during the 2004 elections ranked 16th among the various industries tracked by The Center for Responsive Politics — far behind such notables as lawyers and law firms ($182 million), real estate ($96 million), securities and investments ($91 million), and health professionals ($74 million). If money talks, it is no surprise that lawyers have such a large influence inside the DC beltway. Much has been made in the media of the oil industry's (especially Enron's) input into oil-related legislation, but most of the legislation beneficial to the oil industry has gained little support in Congress. Either the oil industry's influence far exceeds the level of its contributions or its influence has been greatly exaggerated by virtue of the prior association President Bush and Vice President Cheney had with the oil industry. The overriding fact is that, at present, high oil and natural gas prices are providing the industry with record or near-record profits; therefore, the oil industry does not need much assistance from Washington, DC.

Interestingly, the largest political contributions in 2004 came from the "retired" in the amount of $184 million. This figure obviously includes contributions from AARP's war chest. With that type of access and presumed influence, it is a little short of amazing that the problems of the Social Security system have not been solved.

The other windmill worth tilting is the perception that the oil industry controls the price of crude oil. This assertion has the same relevance as saying the farmers control the price of corn. I will acknowledge that the industry may have controlled the price prior to 1973.That period was characterized by price stability in the extreme, it should be noted. The only price increase of note between 1920 and 1973 was during the economic expansion immediately following the Second World War. If you are making decisions on large, long-term capital investments, price stability at economic levels is a good thing, not a bad thing. OPEC did as good a job as they could between 1973 and 2000 to regulate prices in a range that was high enough to provide them with good returns, but low enough to preserve their market share. As efficient as OPEC tried to be, the price fluctuations under their watch were orders of magnitude greater than before 1973. Even those fluctuations seem minor when compared with the period since 2000. If the nabobs of the oil industry are now regulating the price of oil, they have certainly become sloppy and inefficient since 1973. They are also acting counter to their own best interests. Oil executives have stated that price stability, even at a lower price, is more conducive to

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long-term planning than extreme price fluctuations. A predictable market takes some of the risk out of large investment decisions.

I need to credit the Wilderness Society for pointing out how effective fuel efficiency can be in reducing oil consumption, although I think it may have misquoted the EPA. The original quote is "According to the Environmental Protection Agency, increasing fuel efficiency standards for new vehicles by just 3 miles per gallon would save more than 1 million barrels of oil per day." My initial thought was that this was an exaggeration of some magnitude. However, that is a true statement if it is applied to the average fuel efficiency of the entire fleet of automobiles and light trucks on the road today and not merely to the new vehicles. The 240 million automobiles and light trucks in the United States consume approximately 380 million gallons of gasoline per day with an average fuel efficiency of approximately 20 mpg. That means Americans drive about 7.6 billion miles or 32 miles per vehicle every day. The fuel efficiency numbers work when applied to the total automotive fleet; increasing the average fuel efficiency to 23 mpg will indeed save 1 million barrels of oil per day. It is not a myth; a 15% increase in average fuel efficiency on all automobiles and light trucks will ultimately result in a 5% reduction in US oil consumption.

Help Wanted

The HGS Academic Liaison Committee needs a few more geologists who are willing to speak to Houston's students. They have been unable to fulfill requests from area teachers for guest speakers recently because of scheduling conflicts among the pool of volunteers. We need to expand the size of the pool. If you have the desire and the time for a little outreach to area students, contact Alison Henning. Her contact information is found at the front of the Bulletin. She would be happy to help you craft a presentation, if you do not already have one. The HGS also has resource materials available for your use. Facing a room full of students can be intimidating, but someone needs to bring them word of the real world of science. Why not you? ■

Member News and Announcements

New Orleans HGS member **Michael Mackenzie** reports that since mid-October, he has been back in his office in New Orleans. All office and home data currently listed in the latest HGS Membership Directory are current and correct.

500 judges Needed for AAPG Meeting

The 2006 AAPG Meeting in Houston from April 9 – 12, needs **500 judges** for Oral (Matson Award), Poster (Braunstein Award) and SEPM presentations. Please participate as a Judge by contacting: shensley@aapg.org

Academic Liaison Committee seeks Volunteers

Interested in visiting local schools to discuss geology? Join the Academic Liaison Committee. Contact Alison Henning at Alison@henning.com or 832-203-5016 for more information.

Science & Engineering Fair Internship

In honor of **Richard Howe's** extensive service to the Science and Engineering Fair of Houston (SEFH), one of the two HGS-sponsored student internships at the Houston Museum of Natural Science has been designated the ***Richard Howe Internship***. This internship will be awarded for the first time at the 2006 SEFH to be held March 23 – 25.

SEVERE STORMS
Impact & Disaster Response in Gulf Coast Communities

Rice University presents a two-day conference open to the public, organized by Dr. Philip Bedient:
March 15-16-17, 2006
Rice University - Duncan Hall - McMurtry Auditorium
Conference fee: $200.00.
REGISTER AT:
https://cohesion.rice.edu/services/eventreg/?event=SSID

With experts from the private, public and academic sectors, the conference will focus on the technical, social and economic issues associated with tropical storms and hurricanes in Gulf Coast communities. Hurricanes Katrina and Rita — what we expected and what we experienced — will, of course, feature prominently in the conference's coverage.

For agenda and full conference information, go to: http://hydrology.rice.edu/

Please register soon since seating is limited!

Sponsored by:
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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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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 $50 for 30 days on the Website but they must be geoscience jobs of interest to our members. Current HGS members may post their resumes at no charge. If you have a product or service available at no charge, you can post it in the Business Directory at no charge. Geo-related Business Cards and job openings may be posted directly by any registered user and members may post their own resumes. They will be activated as soon as practical.

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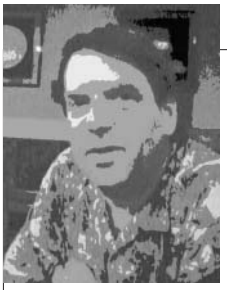


From the **Editor**

by ***Paul Britt***
editor@hgs.org

Mt. Augustine Volcano — Erupting
The Long Point Fault — Exposed

TOP TEN REASONS YOU MIGHT BE A GEOLOGIST: *
4. Your photos include people only for scale and you have more pictures of your rock hammer and lens cap than of your family
next month, reason no. 3…

Mt. Augustine Volcano

Before getting into the main topic for the month, a review of last month's article on Mt. Augustine is in order. At press time last month, the volcano had erupted twice. Since then, it has erupted numerous more times. Nine explosive eruptions of Augustine Volcano occurred between January 11 and 17, each sending volcanic ash to more than 30,000 ft above sea level, and associated pyroclastic flows and rockslides were reported. On January 28, five more explosive eruptions occurred, the last destroying two seismic stations and one continuous GPS station, leaving four seismometers and three GPS stations operational on the island. Following the last eruption, the volcano remained in a state of continuous eruption and accompanying ash emission, and continued erupting as of February 2.

Elevated seismic activity and the observance of thermal anomalies throughout the island area associated with the volcanic activity continue to be observed. The Alaska Volcano Observatory (AVO) is continuously monitoring the activity with seismic stations, aerial over-flights and a live webcam. The webcam allows the public to view the volcanic activity at www.avo.alaska.edu.

The Long Point Fault … is over 10 miles in length, and is second only to the Hockley Fault in vertical displacement.

The observations being made on this volcano will greatly aid in the study and possibly the predictability of volcanic eruptions worldwide, leading to further protection of health and public safety from such hazards.

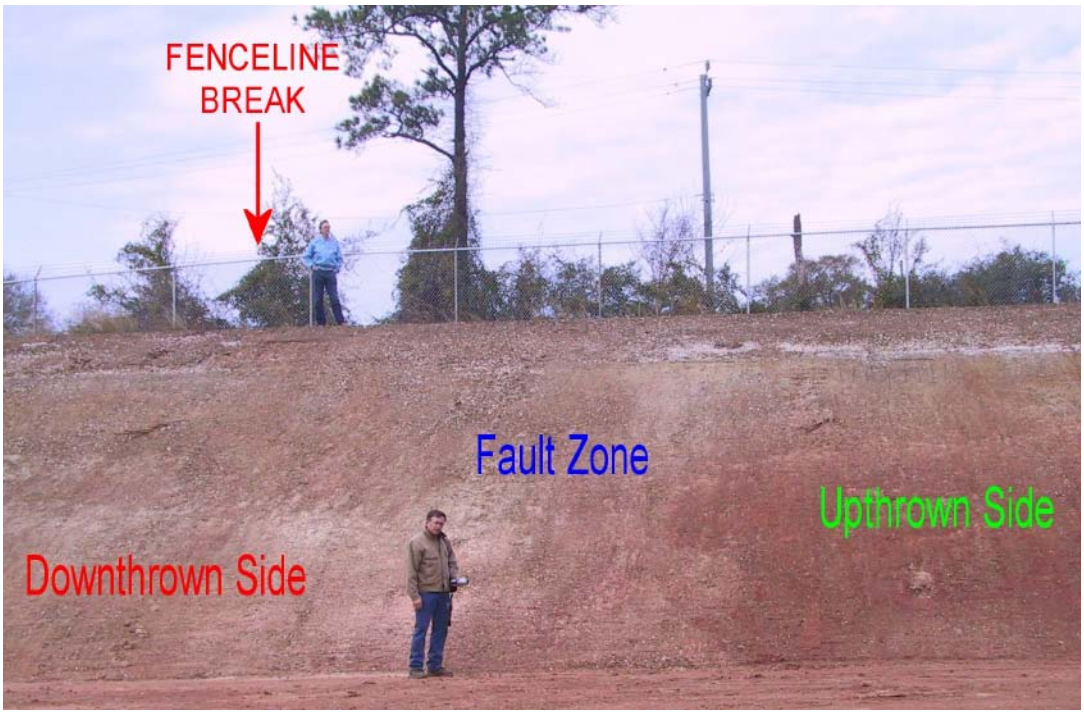
The Long Point Fault

The Long Point Fault is an active surface fault that spans much of the northwest and west part of the Houston metropolitan area. It is over 10 miles in length, and is second only to the Hockley Fault in vertical displacement. It has damaged 204 structures, according to Dr. Carl Norman, as well as roadways and parking lots in its path. The Sam Houston Tollway overpass structures near I-10 have been built to accommodate its **From the Editor** *continued on page 11*

The west side of the detention pit showing the discoloration defining the fault blocks.

From the Editor continued from page 9

movement. Its destructive power has been fairly well documented. But while it can be seen in map view by its damage, it has rarely been observed in an inclined or cross-sectional view — until now.



A closer view of the fault zone. Gary and Bruce shown for scale (see reason no. 4 above). The fence-line break is offset due to the strike of the fault.

Recently, the Igloo Plant (of Igloo cooler fame), at the northwest corner of the I-10 and the West Sam Houston Tollway intersection, was demolished, and a storm-water detention pond was excavated as a part of the I-10 expansion project, exposing a view of the Long Point Fault where it intersects the pond wall at a scale never previously seen.

Photos of this feature were provided to the *Bulletin* by Richard Howe and Bruce Woodhouse. Accompanied by Carl Norman and Gary Kowalczyk, this intrepid group of explorers braved the wilds and weather of west Houston on a Saturday in January to bring these observations to the HGS membership.

The west wall of the pond can be clearly seen from the comfort of your own car while driving southbound on the West Sam Houston Tollway, and is a recommended trip for all interested Houston geologists before the exposure is covered up.

Richard Howe, Gary Kowalczyk and Carl Norman.

While Richard and Carl were annotating the photo for publication, Carl noticed that the structural problem of two intersecting planes (the Long Point Fault and the detention pond wall) would show a misleading angle of the fault plane, if drawn properly. At my request, he provided the following structural geology problem. The answer will appear in next month's *Bulletin*.

Given:

- Orientation (strike) of the pond wall is north-south and the wall face is dipping east 23 degrees.
- Strike of the fault is N68E dipping southeast 74 degrees.

Problem:

- What is the plunge and bearing of the line of intersection between the wall and the fault plane?
- What is the pitch (rake) in the exposure plane (wall surface)?
- While facing the wall (due west), which direction would you expect to see the fault plane dipping if it were visually more discernable?
- What illusion could you expect the fault's intersection with the wall to produce?

Use of a stereo net is recommended, however a descriptive geometry solution can also be used. I bet you thought you were done with this type of problem when you graduated college. For those inclined to do so, send your answers to editor@hgs.org.

"June is Busting Out All Over" with AAPG Education Opportunities

Field Seminars!!

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

Leaders: Lee F. Krystinik, ConocoPhillips, Houston, TX and Beverly Blakeney DeJarnett, Bureau of Economic Geology, The University of Texas, Houston, TX
Dates: June 5-11, 2006
Location: Begins and ends in Salt Lake City, Utah
Tuition: $2,000 (increases to $2100 after 5/08/06), includes ground transportation, guidebooks, some meals
Limit: 25
Content: 4.2 CEU

Who Should Attend
Geologists and Geophysicists of all experience levels.

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

Leaders: Antonio Teixell, Universitat Autònoma de Barcelona, Spain, and Antonio Barnolas, Instituto Geológico y Minero de España, Madrid, Spain
Dates: June 12-16, 2006
Location: Begins and ends in Barcelona, Spain
Tuition: $1,750 USD (increases to $1850 after 5/01/06), includes guidebook and course materials, internal and roundtrip transportation from Barcelona, lodging, and all meals.
Limit: 22
Content: 3.5 CEU

Who Should Attend
Exploration and development geologists and geophysicists interested in thrust-fold structures and tectonics-sedimentation interactions in compressional belts.

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

Leaders: Gregor P. Eberli, Comparative Sedimentology Laboratory, University of Miami, Miami, FL; G. Michael Grammer, Dept. of Geosciences, Western Michigan University, Kalamazoo, MI; Paul M. (Mitch) Harris, Chevron Energy Technology Co., San Ramon, CA
Dates: June 12-17, 2006
Location: Begins and ends in Miami, Florida. Four days are spent on a chartered boat in the Bahamas.
Tuition: $3,600 (increases to $3700 after 5/16/06), includes flights to and from the Bahamas to Miami, boat, accommodation in the Bahamas and all meals
Limit: 11
Content: 4.2 CEU

Who should attend
Petroleum geologists, geophysicists and reservoir engineers who are working in carbonates and need to understand facies heterogeneities and porosity distribution on exploration and production scales.

Short Courses!!

Quantification Of Risk — Petroleum Exploration & Production

Date: June 6-9, 2006
Location: Denver, Colorado
Tuition: $995, AAPG members; $1,095, non-members (increases to $1095/1195 after 5/9/06), includes course notes and refreshments
Limit: 40 persons
Content: 3.0 CEU
Instructors: Gary Citron, Mark McLane, Rose and Associates, Houston and Midland, TX, respectively

Who Should Attend
Course is designed for geologists, geophysicists, engineers, and their managers. The course is also helpful for financial advisors, corporate planners, accountants, and state and federal government individuals.

Practical Salt Tectonics

Date: June 26-28, 2006
Location: Dallas, Texas
Tuition: $795, AAPG members, $895, non-members (goes up to $895/995 after 5/26/06), includes course notes and refreshments
Content: 2.1 CEU
Instructor: Mark G. Rowan, Consultant, Boulder, CO

Who Should Attend
Exploration and production geologists, geophysicists, and managers working in salt basins worldwide who need either an introduction to salt tectonics or an update in this rapidly evolving field.

New GeoTour!!!

Geologic Tour through the Napa-Sonoma "Wine Country" Region

Leaders: Brent Miyazaki, Innovateur International, Pasadena, CA, Laurie McClenahan, MHA Environmental Consulting, San Mateo, CA
Dates: June 10-14, 2006
Location: Sonoma Valley, California (begins and ends in Oakland, CA)
Tuition: $2,300 per individual or $3,675 per couple (increases to $2,400 per individual/$3,775 per couple after 5/3/06), includes 4 nights lodging, bus transportation, 2 lunches, daily refreshments, tours and tastings at 9 different wineries, a group gourmet dinner event, entrance to historic sites and guidebook.
Limit: 30 persons

Who Should Attend
Geologists, spouses/partners and anyone who would like to experience the area's historical and cultural treasures while tasting various wines from a region rich in natural resources.

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

Monday, March 13, 2006

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

The Value of an Integrated Subsurface Model: 3D Seismic Limitations in Prediction of Reservoir in the Grand Isle Production Area, Offshore Louisiana

by ***Ingo Steinhoff and William A. Hill***
BP America, Inc
Houston, Texas

Operators still encounter structural surprises while drilling for remaining reserves in well-established, mature fields, even with 3D seismic coverage, on the Gulf of Mexico shelf. These surprises are associated with the nature of the remaining development opportunities along major fault systems. Fields that have attic reserves in stacked pay horizons are being targeted via increasingly complex well paths.

Subsurface well control is needed in development mapping, especially when targeting multiple fault-sealed reservoirs.

Wells designed to target both shallow and deep reservoirs and develop remaining reserves often find that the shallow structures are penetrated as mapped. Deeper horizons, below major faults and being within seismic "fault shadows," have inherently less well control and are more problematic to predict. New well paths must be carefully designed using all available subsurface data when developing remaining stacked target horizons. One problem is that seismic structure maps may show conforming structural positions in both shallow and deep target horizons, but subsurface well control has a poorer quality match of structural conformance betweeen individual horizons.

The data presented here strongly suggest that, within an area with 3D seismic coverage, subsurface well control is needed in development mapping, especially when targeting multiple fault-sealed reservoirs. This is specifically true when the target reservoirs are located in areas of limited or masked seismic resolution owing to proximity to the sealing fault systems. Slight variations in seismic depth conversion of mere fractions of a percent, at depths of about 10,000 feet or more, can be decisive for a development prospect if structural gains are merely in the tens of feet to offsetting well control. The case discussed here is an example of known structural variations of chronologically and generically linked stratigraphic units. Variations in reservoir quality were also found within a few hundred feet, apparently governed by local facies changes. Understanding both factors significantly mitigates drilling risk and helps operators devise appropriate development strategies.

HGS General Dinner Meeting *continued on page 15*

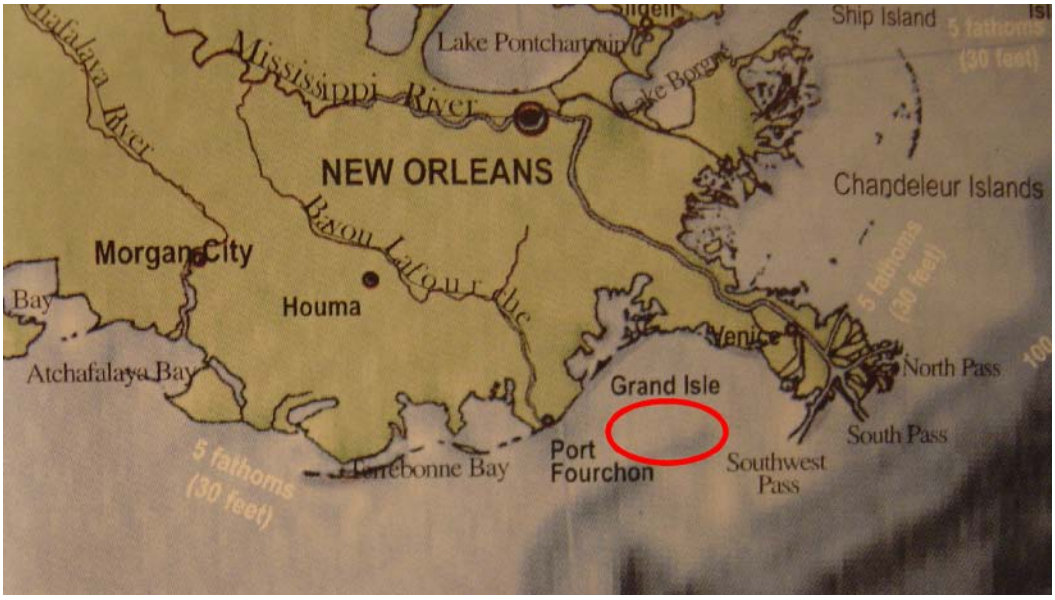


Figure 1: Location map of study area in Grand Isle on the Louisiana shelf of the Gulf of Mexico.

HGS General Dinner Meeting continued from page 13

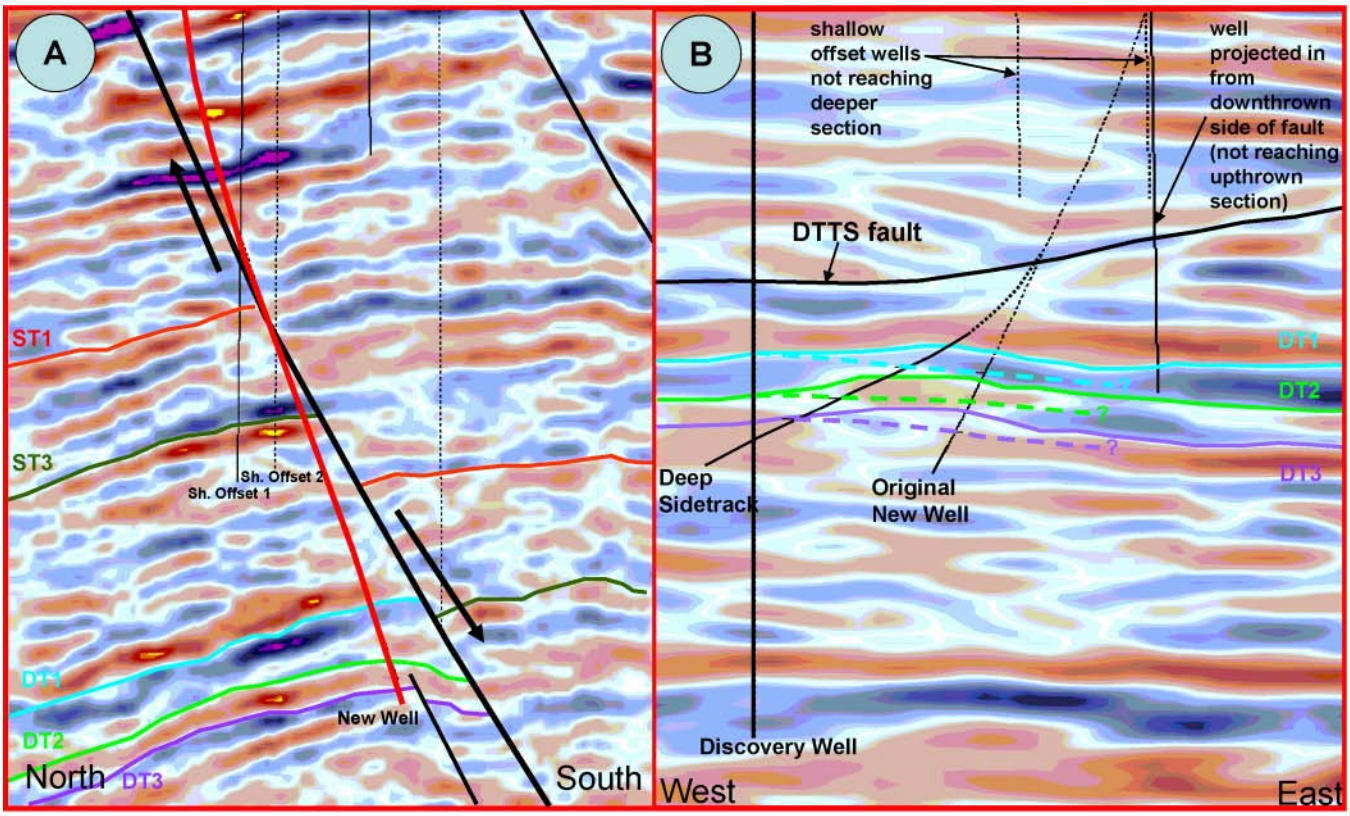


Figure 2: Overview of targeted structure and original well path; ST = shallow target, DT = deep target, Sh. Offset = shallow offset well. A) north-south section; B) east-west section, where solid lines indicate the mapped seismic reflectors and dashed lines mark tops of deep targets as encountered by wells. DTTS = down-to-the-south

Seismic Must Be Integrated with Subsurface Well Control to be Effective

To demonstrate the challenge of using and relying on 3D seismic data, this talk will describe an example of a development well drilled in early 2004 in the Grand Isle area designed to develop remaining attic reserves (Figure 1). The new well targeted both Pliocene (between –12,500 and –12,700 feet TVDSS) and Upper Miocene (between –13,350 and –13,800 feet TVDSS) reservoirs on a typical three-way, upthrown closure along a major down-to-the-south growth fault (Figure 2). The development targets are not supported by 3D seismic amplitude anomalies on the data. Hydrocarbon prospectivity was identified using offset penetrations and production in the area.

Three proposed deep target horizons were identified by four observations: 1) pay in offsetting wells, 2) the structure in the deep section as rendered in the seismic volume, 3) same structure in the shallow section as verified by both seismic and well control and 4) structural conformance of shallow and deep horizons. More well control existed for defining the structure of the shallow targets in the prospect three-way closure than for the deep targets. The 3D seismic data and well control from six wells confirmed the overall structural picture and narrowed the target area for the planned well close to the apex of the shallow structure area. Seismic data initially indicated that the deep target was conformable with the shallower target horizons. Deep penetrations were sparse, but some offset wells had logged pay to the west and northwest of the crest of the closure. The closest well to the proposed new well, in the same fault block, was the 1955 straight-hole discovery well for this part of the field, originally drilled on 2D seismic. This 1955-era well was located about 900 feet to the west of the new development well location and had about 20 feet of pay in each of the deep horizons (Figure 3). Because the risk of correctly imaging the crest of the structure in the deep horizons was deemed to be high, a contingency plan was devised to sidetrack the well and to twin the deep section of the discovery well.

The main risk in drilling this development well was our team's ability to predict and achieve a structural gain of 20 to 30 feet above the old discovery well. Post-drill results showed that the structure was correctly predicted in the shallower part of the new well and multiple pay zones were encountered. However, all three deeper horizons were encountered about 20 to 25 feet structurally deeper than in the old discovery well, and 20 to 45 feet deeper than predicted from the 3D seismic data. All were wet.

HGS General Dinner Meeting *continued on page 17*

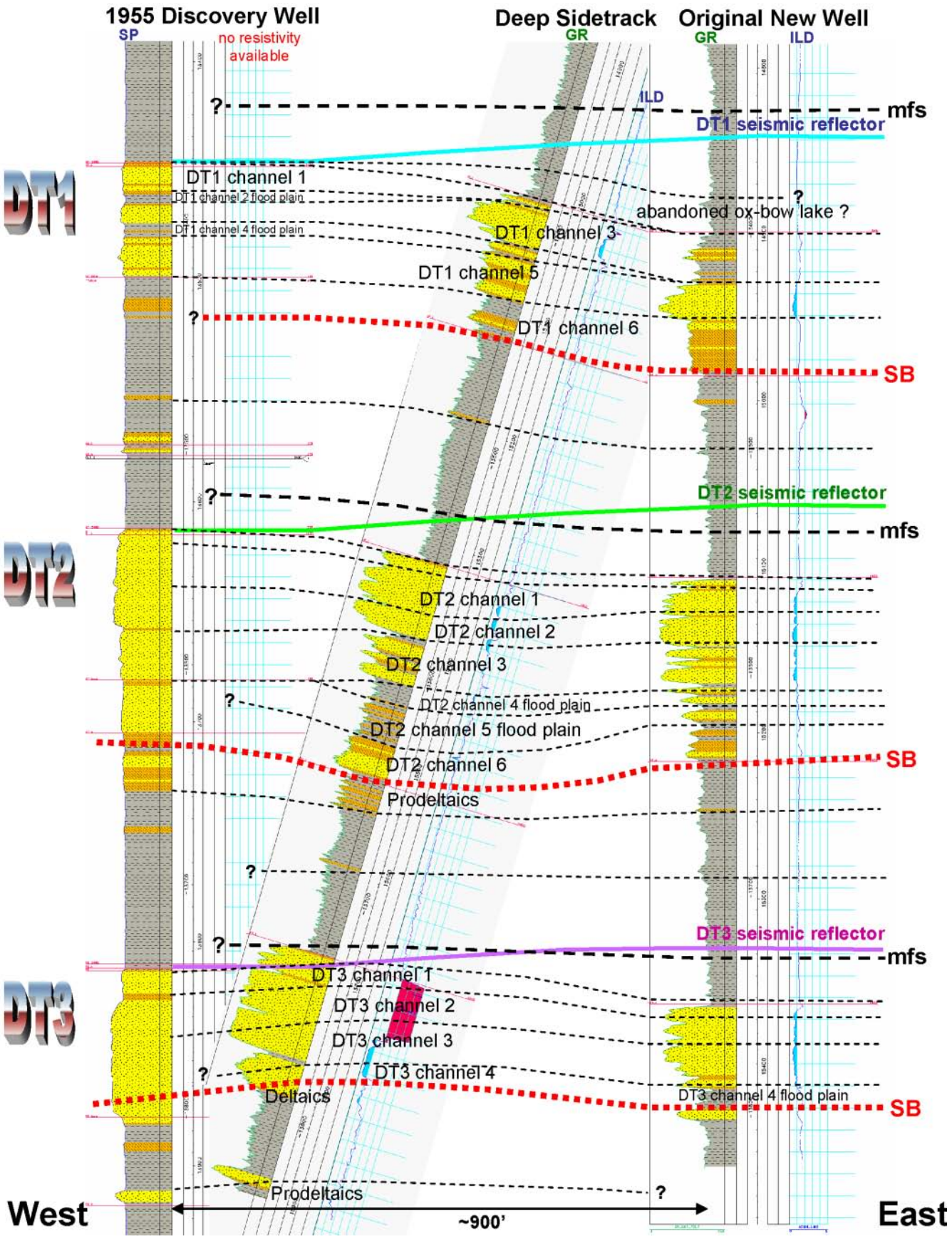


Figure 3: Geologic interpretation based on well data reveals actual structural and lithostratigraphic setting. Approximate position of seismic reflectors is also shown. Structure predictions of top of reservoir decrease from bottom to top sand unit due to internal facies variations. DT = deep target.

HGS General Dinner Meeting

continued from page 15

Another attempt to side-track to these missed targets revealed a more complete picture of the actual structure and stratigraphy of the deep target section. The deepest target, encountered at a distance of only about 100 feet from the old discovery well and about 5 feet higher, logged about 5 vertical feet more pay. The side-track successfully tested the actual crest of the structure on the deepest target 100 feet from the old discovery well. The variability of the stratigraphic thickness of sands and shales posed an additional component of risk to the prediction of structure of actual reservoir-quality rock in the deeper section of interest. The seismic was only about 20 to 45 feet off, which accounts for an error of only ~0.3% at this depth. Apparent oil/gas seismic-based structural conformance over 1000 feet of section may be misleading when the amount of structural gain is comparatively small (in this case ~3.5% over the interval studied).

Conclusions

Exclusively relying on 3D seismic data to predict structure along major faults is very risky when development teams attempt to develop remaining reserves on the Gulf of Mexico shelf. In the case described, only the seismic structure of shallow targets could be confirmed by a new development well, while structures of deeper targets were predicted incorrectly. Due to limited deep well control penetrations, little was known about reservoir variations in the deeper section across the prospective fault block, but drilling results show the importance of having well data to reduce risk around both reservoir and structure. Well control should be combined with seismic data as much as possible when planning more complex wells to stack remaining reserves in old fields. Subsurface maps and models should be updated as the field life is extended by drilling and completion activities. An inherent risk when prospecting for remaining reserves, especially on broad shallow structures, is subseismic faulting. Small faults can remain undetected by both seismic and well control, causing unexpected structural results for predicted stratigraphic markers and so should be included in the risk profile of any given development project, especially when throws on these faults exceed reservoir thickness. ■

Acknowledgments

The authors thank BP for permission to publish the data presented and Fairfield Industries for permission to use its seismic data in this publication. Thanks are also due to Port Publishing for permission to display parts of its map "Gulf of Mexico" in Figure 1. The major part of this paper was also submitted and accepted for publication with the GCAGS Annual Meeting 2005 in New Orleans, which was cancelled due to flooding of the city in the aftermath of Hurricane Katrina.

Biographical Sketches

Ingo Steinhoff (speaker) is lead geologist for BP's New Business Development team, Gulf of Mexico shelf, and responsible for coordination of subsurface technical transfer between BP and outside partners in structuring E&P agreements. He is also managing geotechnical aspects for BP pertaining to outside-operated assets on the Gulf of Mexico shelf. He is the company representative for research consortia on stratigraphy and reservoir architecture in arctic Norway, Trinidad and the United States.

Ingo is from Hamburg, Germany, and holds BS and MS degrees in geology from the University of Hamburg and a PhD in geological sciences from The University of Texas at El Paso. He has 13 years of experience in the petroleum industry including Europe, Canada and the United States, working unconventional gas reservoirs in the eastern Green River Basin, Wyoming; sour gas reservoirs in British Columbia, Alberta; and onshore Germany before his current assignment in the Gulf of Mexico shelf. Steinhoff's early career was with BEB Erdgas & Erdoel GmbH, an Exxon/Shell joint venture, in Hanover, Germany, in 1992. Steinhoff worked as an independent petroleum geologist before joining BP in 1999. Since then, he was located in Denver, Houston and Calgary before returning to Houston to work offshore Texas and Louisiana. He is a licensed professional geologist in Texas and has published 15 papers internationally.

William A. Hill is a subsurface advisor for the BP North American Gas Business Unit. His duties include assuring the technical quality of work relating to development and extension prospecting, mentoring junior staff as well as providing technical, strategic and organizational advice within the North American Gas Business Unit for BP. Hill earned an MS in geology from Texas Christian University, Fort Worth, Texas, and a BA in geology from LaSalle University, Philadelphia, Pennsylvania, and is a licensed professional geologist with the State of Texas, with 25 years of experience in exploration, development and research. His areas of specialization include understanding the relationship between geophysical attributes and hydrocarbon accumulations, reservoir characterization, regional basin analysis, salt tectonics, salt imaging and sequence stratigraphy. These skills have been applied within the Gulf of Mexico as well as in basins within onshore North America and other parts of the world. Hill has authored or coauthored 25 internal and external publications.

Thursday, March 16, 2006

Petroleum Club • 800 Bell (downtown)
Social 11:30 a.m., Lunch 11:45 a.m.

Register online, call, fax or e-mail your reservation to Mrs. B.K. Buongiorno at Tel: 713-651-1639, Fax: 713-951-9659, e-mail: bkspee@aol.com by 12:00 Noon, Tuesday Jan 17, 2005. **Members and Affiliates who register by Jan 17 pay $30. The cost is $35 for guests, non-members, and new registrations at the door.** No-shows will be billed. You can now sign up for SIPES Meetings online at www.sipeshouston.org, but payment is still required by regular mail or at the door.

SIPES Luncheon Meeting

*by **J. Bee Bednar***
Panorama Technologies Inc.

Migration Without the Math: Did the Greeks Really Know All This?

Forming a subsurface image from recorded seismic data has truly become a mathematical physicist's delight. Today, virtually every seismic imaging module is based on someone's favorite very complex coupled first-order or second-order partial-differential equation or equations. To the not-so-mathematically inclined, the algorithmic hierarchy is a bewildering diagram of confusing labels, terminology and, worse, complicated underlying explanations.

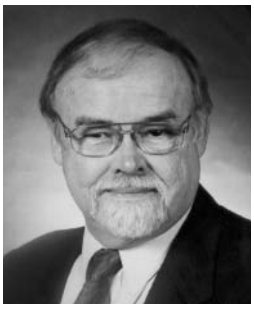
Therefore, it might be surprising to current practitioners of the art to learn that this was not always the case. Seismic imaging has progressed from some simple geometric principles (things the Greeks were well aware of) to the more complex formulations we understand today. The reason this was possible is that the same principles underlie today's complex equations some of us seem to love. It seems reasonable to decide that if the simple concepts worked well in the past, they might be sufficient to explain the more complicated approach of the modern era.

Seismic imaging has progressed from some simple geometric principles … to the more complex formulations we understand today.

What I try to do in this short presentation is use this approach to generate some insight into what we do today along with what works, why we need it and why it sometime is not as successful as we would like. I end with a recipe for what seismic imagers will be trying to do in the future, and explain why computers have become such an integral part of the search for subsurface hydrocarbons. Along the way I hope to at least attempt to shed some light on available algorithms, how acquisition affects output results why some algorithms are very sensitive to incorrect velocities, as well as how we usually get the velocities in the first place. However, I promise not to use any equations more complex than what your favorite Greek might put in a Trojan horse. ■

Biographical Sketch

After receiving a PhD in mathematics from the University of Texas at Austin, J. Bee Bednar did research in anti-submarine warfare and taught mathematics at Drexel University and the University of Tulsa. Bee was Manager of Seismic Research at Cities Service Company and later became Manager and then Director of Geophysical Sciences at Amerada Hess, where he was instrumental in development of distributed seismic processing software and led Amerada to the forefront of prestack depth imaging and computer-assisted interpretation. He has participated in over 100 prestack depth imaging and interpretation projects and has published over 75 papers in mathematics, electrical engineering, geophysics and computer science. After retiring from Amerada Hess he became Vice President of Research and Development at Advanced Data Solutions, where he was instrumental in introducing LINUX-based cluster computers to the energy industry. He founded 3dBee Tech in 1997 to do consulting and geophysical software development. Bee is currently one of the founders of Panorama Technologies Inc, where he is Senior Executive Vice President. He still consults for companies engaged in the exploration for and production of hydrocarbons and manages development of geophysical software on modern cluster computers.



Thursday, March 16, 2006

HESS Building • 5430 Westheimer, Houston
Social 5:30 p.m.

Cost: $25
Reservations: Call or email Dale Bird, by noon Tuesday, March 14, 2006
281-463-3816 or dale@birdgeo.com (email is preferred)

GSH Potential Fields Group
Dinner Meeting

by ***John Ferguson***
University of Texas at Dallas

The 4-D Gravity Method and Water Flood Surveillance at Prudhoe Bay, Alaska

It has long been recognized that repeated gravity surveys could be used to track changes in either elevation or mass distribution in the Earth. The technology to effectively track mass distribution changes resulting in μGal level signals over long periods of time has matured in recent years. The Prudhoe Bay, Alaska, water flood surveillance project has hastened that development and set a new standard for the conduct of time lapse or 4-D gravity surveys. This talk will review the history of the Prudhoe Bay efforts and some of the milestones achieved along the way.

The Prudhoe Bay reservoir water flood is the largest ever undertaken.

The Prudhoe Bay reservoir water flood is the largest ever undertaken and is intended to repressurize the gas cap and maintain declining production over a period of decades. It is difficult to monitor the progress of the water due to a lack of wellbores located in the gas cap. The 4-D seismic method will also be used, but it is limited by expense and permafrost. In 1993 Jerry Brady and Don Walcott, then at ARCO Alaska, started to consider the application of repeated surface and borehole microgravity surveys to monitor the water flood.

The University of Texas at Dallas (UTD) became involved in a theoretical investigation of the possibility of gravity surveillance. An inversion procedure was formulated and tested on synthetic gravity data based on reservoir simulations. Various 4-D gravity noise scenarios were proposed and the resolution of the method determined. At about the same time (1994), a program of field experiments was initiated to refine procedures for actually obtaining the type of data required for the modeling. It soon became clear that the state of the art would require some extension to achieve that goal.

In successive field experiments, conducted in the Arctic winter, microgravity measurement techniques (both relative and absolute gravity meters) and geodetic measurements using the Global Positioning System were refined. The noise levels to be expected in the 4-D gravity data were characterized and a long-term monitoring program was planned, involving about 300 stations. In 2002 a full-scale baseline survey was conducted and late in that year water injection commenced. Repeat surveys were conducted in 2003 and 2005, and a third survey is planned for this year.

The 4-D data over the 2002 to 2005 interval has been modeled and the water flood has been detected. Model results resemble predictions from reservoir simulations but are also producing unexpected results that should help the reservoir engineers understand the actual situation in the ground. The methodologies and standards developed for this project are now being used to plan surveys in other areas. ■

Biographical Sketch

John Ferguson has been a member of The University of Texas at Dallas geosciences faculty since 1982 and is currently the Department Chairman. He was awarded a PhD degree in geophysics from Southern Methodist University and previously obtained an MS in geophysics from the University of North Carolina and a BS in physics from Wofford College. He was a founding member of the SAGE Geophysical Field Course, which won the American Geophysical Union's Excellence in Geophysical Education Award in 1999 and has now been taught for 23 consecutive years. Research interests span seismology, potential fields, mathematical geology, signal processing and numerical modeling. In addition to projects involving 4-D microgravity in Alaska and New Mexico, Dr. Ferguson is active in the application of near-surface geophysics and high-resolution seismic methods to archaeology.

Monday, March 20, 2006

International Explorationists Dinner Meeting

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

by ***Lorena Moscardelli***
UT Jackson School of Geosciences
Austin TX

Mass Transport Complexes in Offshore Trinidad and Worldwide Analogs

Mass transport complexes form a significant component of the stratigraphic fill in ancient and modern deep-water basins worldwide. One such basin, the deep marine margin of eastern offshore Trinidad, situated along the obliquely converging boundary of the Caribbean and South American plates and proximal to the mouth of the Orinoco River, is characterized by catastrophic shelf margin processes, intrusive and extrusive mobile shales, active tectonics and prolific migration and sequestration of hydrocarbons. Major structural elements that characterize the deep-water slope regions of this area include

- large transpression fault zones (i.e., Darien Ridge, Central Range, Los Bajos) along which mobile shale walls are extruded,
- fault-cored anticlinal structures overlain by extrusive seafloor mud volcanoes,
- shallow-rooted sediment bypass grabens near the shelf break, and
- normal regional and counter-regional faults.

A mega-merged, 10,000-sq. km. 3D seismic survey reveals several erosional surfaces that form the boundaries of enormous mass transport complexes (MTCs). The data shows numerous episodes of MTC development, characterized by chaotic, mounded seismic facies and fan-like geometry. Their extent (6700 sq. km) and thicknesses (up to 250 m) are strongly influenced by seafloor topography. These systems show run-out distances from the source area of 60 to 100 km. Depositional architecture identified with these units include huge lateral erosional edges, linear basal scours and side-wall failures. Mud volcanoes buffer deposition and produce sediment shadows on their downdip side; these depositional remnants are potential stratigraphic traps. MTCs are believed to be produced by failures initiated by sediment accumulation and oversteepening of the slope, tectonic movement, high-frequency sea level fluctuations and/or possibly hydrate destabilization and dissolution.

Several architectural elements documented in the MTCs in offshore Trinidad have been identified and described in similar settings around the world. Basal scours are common in MTCs located in the continental margins of offshore Brunei, offshore eastern Borneo (Indonesia) and the Monterey channel-mouth lobe in offshore California. Side-wall failures or syndepositional faults have been described in outcrop studies in the Jackfork Formation, Ouachita Mountains, of Arkansas. Equivalent "imbricate slices" have also been reproduced in laboratory gravity transport experiments. All these well-documented case studies are used as potential analogs in the deep marine settings of offshore Trinidad. The objective of this research is to better understand the role that MTCs play in forming continental margins around the world and the effect that they have on fluid flow and reservoir development within deep water basins. ■

Biographical Sketch

LORENA MOSCARDELLI graduated from the Central University of Venezuela in 2000. After graduation she worked as an explorationist in the national oil company of her home country. In 2003, she entered the Jackson School of Geosciences at The University of Texas at Austin to pursue a PhD degree in geological sciences. She is currently working as a graduate research assistant at the Bureau of Economic Geology, where she has been conducting research in the southeastern part of the Caribbean under the supervision of Dr. Lesli Wood. Her career goal is to become a geologist specializing in stratigraphy and seismic interpretation.

Currently, she is particularly interested in the application of new quantitative seismic geomorphology techniques in shallow and deep water deposits, and she wants to evaluate the impact of this new technique in reservoir modeling and development. She has obtained several grants and scholarships including the 2004 L. Austin Weeks Grant from the AAPG Foundation, the Thomas R. Banks Memorial Scholarship from the San Antonio Area Foundation in 2004, an Outstanding Student Paper Award from the Hydrology Section of the AGU in 2004 and a Graduate Student Research Grant from the GSA in 2005.

The 5th PESGB/HGS African Conference
Second Announcement and Call for Papers

Africa: Elephants of the Future

QE2 Conference Centre, London
September 12-13, 2006

Deadline for Abstracts: March 13

Africa continues to be an "elephant" of the upstream oil & gas industry. Growth in existing fields and the potential for new elephant= and "rhino" sized fields will be the themes for the PESGB/HGS 5th annual conference, which has established itself as the primary technical E&P conference on Africa, at which attendance is expected to exceed 300+.

The event will include a large poster program in addition to a comprehensive oral program of about 25 high-quality talks. Based on early submissions, the program is expected to include presentations by operators, consultants, governments and academia on

- Technologies to maximize recovery in existing giant fields (e.g., Algeria)
- Models for developing African gas resources (IHS)
- Remaining potential of West African deepwater petroleum provinces (e.g., Niger Delta, Ghana, Mauritania)
- Salt tectonics of deepwater South Atlantic
- Prospects in highgraded frontier basins (e.g., Seychelles, Chad, Namibia, South Africa)

Further Abstracts (circa 200 words) should be sent as soon as possible, and no later than 13 March 2006, to Duncan Macgregor at duncan.macgregor@neftex.com or duncan.macgregor2 @ntlworld.com. Extended abstracts are normally written once the papers are accepted and are issued on a conference CD, which is again being kindly sponsored by ECL - RPS Energy.

Details of early registration, sponsorship opportunities and associated exhibition space are available from the PESGB office "Africa Conference"06' at 5th Floor, 9 Berkeley St, London W1J 8DW, UK; on the PESGB website www.pesgb.org.uk; or directly from jennie@pesgb.org.uk.

The conference committee includes in London: Ray Bate (Chairman), Duncan Macgregor (Technical Co-ordinator), Val Clure, Enzo Zappaterra and Mike Lakin (sponsorship), and for the HGS in Houston: Al Danforth, Ian Poyntz, Steve Henry and Gabor Tari.

PESGB

HOUSTON GEOLOGICAL SOCIETY 1923

Tuesday, March 21, 2006

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

Cost: $31 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 Northsiders Luncheon Meeting

*by **Anthony E. D'Agostino (speaker)****
OMNI Labs, Inc.
Houston, Texas
J. Michael Party
Wagner & Brown, Ltd.
Midland, Texas

Facies and Sequence Stratigraphy of the Abo Formation in the Kingdom Field Area, Terry and Hockley Counties, West Texas

Study of conventional cores, well logs and seismic data in the Kingdom Field and other parts of the Abo shelf complex trend in eastern New Mexico and west Texas has led to new concepts about the style of deposition and techniques for stratigraphic subdivision of the Leonardian Abo Formation. The implications of paleogeographic restoration of the Abo shelf, combined with detailed description and interpretation of conventional cores from nine wells in Kingdom Field, has resulted in the identification of four important depositional facies that have significant control on reservoir character: supratidal/terrestrial (up-dip and top seal), intertidal (reservoir grainstones), platform interior (reservoir barrier) and shelf-edge (secondary reservoir). A fifth facies, karst breccia, is also defined. This study reveals that the most productive facies in Kingdom Field (and along the trend) is the intertidal facies (peloid grainstones), not the shelf-edge facies (boundstone reef). High-resolution stratigraphic analysis combining Fischer plots, well log cross-sections, and 3D seismic data shows that at least three third-order sequence boundaries, associated with exposure of the shelf and significant karsting, are intraformational in nature.

Biographical Sketch *continued on page 39*

Tuesday, March 21, 2006

Wildcat Golf Club • 1200 Almeda Road • Houston, Texas 77045

NOTE DIFFERENT LOCATION AND TIME FROM USUAL MEETING

Cocktails and social hour from 5:30 p.m. – 6:30 p.m.
Buffet Dinner from 6:30 p.m. – 7:30 p.m. • Speakers at 7:30 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 **Beverly and Major Stevenson***
Land/Property Owners
Pierce Junction, Texas

A Historical Overview of Pierce Junction

NOTE DIFFERENT LOCATION AND TIME FROM USUAL MEETING

A brief historical overview of Pierce Junction, Texas will be presented, followed by the history of the Pierce Junction Oilfield, District 3. Major W. Stevenson, Sr. a descendant of Edward Ruthven Taylor, Pierce Junction's first mineral lease holder, will present his family's rich history that spans seven generations. Mr. Stevenson and his wife Beverly D. Stevenson will share their vision of the 21st Century Pierce Junction, which still remains a thriving oilfield. As a result of a paradigm shift in demographics, Pierce Junction is now a land reuse project of the City of Houston Mayor's Office Brownfield Redevelopment Program.

A brief history of Pierce Junction, followed by the history of the Pierce Junction Oilfield.

The Texas Railroad Commission Voluntary Cleanup Program is also involved in the oilfield clean-up effort. ■

References

http://www.houstontx.gov/brownfields/
http://www.rrc.state.tx.us/divisions/og/site_rem/VoluntaryCleanupProgram.html

Biographical Sketches

Beverly Stevenson, originally from Louisville, Kentucky, is the Assistant to the Vice Chancellor and Vice President for Information Technology at University of Houston. She is also a doctoral student in the Human Development and Organization Program at The Fielding Graduate Institute in Santa Barbara. Ms. Stevenson has a Masters degree in planning and administration from Antioch University in Yellow Springs, Ohio, and earned a Bachelor of Science degree in education from Western Kentucky University in Bowling Green, Kentucky.

Major Stevenson, Sr., a fifth-generation Houstonian and graduate of Jack Yates High School, teaches world history and United States history at Willowridge High School. Mr. Stevenson has a Bachelor of Science degree in history from Saint Edward's University in Austin, Texas. In 1995, he competed nationally and won a $25,000 James Madison Memorial Fellowship, created by the United States Congress, for graduate study of the United States Constitution. The foundation received over 2000 applications for the award and Major Stevenson was one of 50 recipients in the nation and one of two in Texas selected. He studied at American University and the University of Houston and earned a Masters degree in history. The James Madison Memorial Fellowship Foundation and the State of Texas have recognized him as a distinguished teacher and constitutional scholar.

The Houston Geological Society
and the 2006 AAPG Convention
Entertainment Committee present —

Landry's DOWNTOWN AQUARIUM
AN UNDERWATER ADVENTURE

Tuesday, April 11th , 6:30-9:30 PM

A great meal, a museum–quality aquarium and midway rides, all in one location.

Fabulous food — Hors d'oeuvre, entrees of seafood, beef, ham, smoked salmon and more...

Sharks!

The Aquarium Adventure...

The Aquarium Adventure exhibit huge fish tanks, white tigers, a 20 foot python and a saltwater petting zoo.

Midway Rides

Midway Rides! Take the Ferris Wheel or a Train Trip through an acrylic tunnel tank filled with sharks.

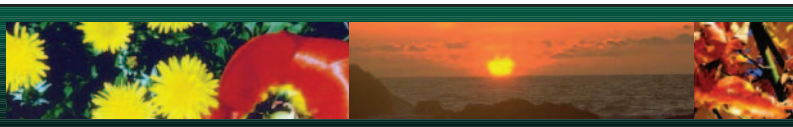
All features included, only **$60 per person**.

Online go to: www.aapg.org/houston and click on "registration".

If you are registering for the convention, choose "Landry's Downtown Aquarium" social activity.

If you are ***not*** registering for the convention, scroll down and choose "no badge" (to purchase tickets ONLY to the Landry's Downtown Aquarium event).

March 2006



Sunday	Monday	Tuesday	Wednesday
	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.**	1	
5	6	7 **HGS Executive Board Meeting**	8
12	13 **HGS General Dinner Meeting** by I. Steinhoff (speaker) and W. A. Hill *"The Value of an Integrated Subsurface Model: 3D Seismic Limitations in Prediction of Reservoir in the Grand Isle Production Area, Offshore Louisiana"* Page 13	14	
19	20 **HGS International Explorationists Dinner Meeting** by L. Moscardelli *"Mass Transport Complexes in Offshore Trinidad and Worldwide Analogs"* Page 23	21 **HGS Northsiders Luncheon Meeting** *"Facies and Sequence Stratigraphy of the Abo Formation in the Kingdom Field Area, Terry and Hockley Counties, West Texas"* Page 25 **HGS Environmental and Engineering Dinner Meeting** *"A Historical Overview of Pierce Junction"* Page 27	22
26 **HGA Spring Trip to Galveston** Page 56	27 **HGS North American Explorationists Dinner Meeting** by S. Dorobek *"Late Paleozoic Deformation in the Permian Basin Region: Styles, Patterns, Kinematics and Effects on Petroleum Reservoirs"* Page 33	28	29 **HGS General Luncheon Meeting** by A. Bouma, B. Hampton and B. Hewett *"The Princess Discovery, Sub-Salt Gulf of Mexico: Challenges of Sub-Salt Imaging in a Fast-Paced Sub-Sea Development"* Page 35

NOTE - Different location and time for Engineering and Environmental Dinner Meeting.

GeoEvents

Thursday	Friday	Saturday
2	3 **NOW you can make your reservations on-line at www.hgs.org**	4
9	10	11
16 **SIPES Luncheon Meeting** *"Migration Without the Math: Did the Greeks Really Know All This?"* Page 19 **GSH Potential Fields Group Dinner Meeting** *"The 4-D Gravity Method and Water Flood Surveillance at Prudhoe Bay, Alaska"* Page 21	17	18
23 **2006 Science and Engineering Fair of Houston (SEFH)** Page 7	24	25
30	31	**Members Pre-registered Prices:** General Dinner Meeting .....$25 Nonmembers walk-ups. ..... $33 Env. & Eng. .....$25 Luncheon Meeting .....$30 Nonmembers walk-ups. ..... $33 International Explorationists .....$25 North American Expl. .....$25 Emerging Technology $25

Upcoming GeoEvents

April 7 – 9
HGS Pre-Convention Short Courses *Page 49*

April 8
HGS Short Course/Lunch
"Ethics for Geoscientists"

April 9–12
2006 AAPG Annual Convention George R. Brown Convention Center, Houston, TX *Page 38*

April 11
HGS Landry's Downtown Aquarium Event *Page 28*

April 13
HGS Post-Convention Short Course *Page 49*

April 18
Joint GSH/HGS Luncheon
"Uses, Abuses and Examples of Seismic-Derived Acoustic Impedance Data: What Does the Interpreter Need to Know"

April 18
Environmental and Engineering Dinner Meeting

April 20
SIPES Lunch Meeting
"Seismic/Sequence Stratigraphy — Applications for the 21st Century"

April 24
North American Explorationists Dinner Meeting

Monday, March 27, 2006

HGS North American Explorationists Dinner Meeting

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

by ***Steven L. Dorobek***
Department of Geology & Geophysics
Texas A&M University
College Station, Texas

Late Paleozoic Deformation in the Permian Basin Region: Styles, Patterns, Kinematics and Effects on Petroleum Reservoirs

The Permian Basin of West Texas and southeastern New Mexico is located in the foreland of the Ouachita-Marathon orogenic belt. The basin was segmented into several sub-basins by fault-bounded basement uplifts during late Paleozoic deformation that coincided with shortening in the Ouachita-Marathon orogen. The north-south trending Central Basin Platform (CBP) is one of these uplifts. It strikes at a high angle to the front of the orogenic belt. The CBP separates the Delaware Basin to the west from the Midland Basin to the east and is bounded by complex fault systems that vary from steep reverse faults to transpressional/transtensional deformation zones. The Ozona Arch is an eastern extension of the southern CBP and separates the Midland Basin from the Val Verde Basin. The Ozona Arch likely represents a broken forebulge that is bounded by steeply dipping, east-west-trending fault

Before late Mississippian time, the Permian Basin was a relatively stable tectonic region characterized by extensive shallow-water carbonate sedimentation.

HGS North American Dinner Meeting

continued on page 39

Wednesday, March 29, 2006

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 ***Aafke E. Bouma, Bret D. Hampton and Ben M. Hewett***
Shell Exploration and Production Company

The Princess Discovery, Sub-Salt Gulf of Mexico: Challenges of Sub-Salt Imaging in a Fast-Paced Sub-Sea Development

This paper (1) gives a brief overview of the Princess Field and its setting in the Mars Basin in the Gulf of Mexico, (2) discusses the strategy and maturation of the sub-salt seismic imaging and (3) analyzes the impact on the field development.

The Princess discovery is located in 3700 ft of water on the northern flank of the Mars Basin on Mississippi Canyon blocks 765 and 766, adjacent to the Ursa field (Fig.1). Shell is the operator for BP, ExxonMobil and ConocoPhillips. The discovery well, drilled in the year 2000 on a poorly-imaged sub-salt truncation trap, penetrated stacked Upper Miocene turbidite reservoirs.

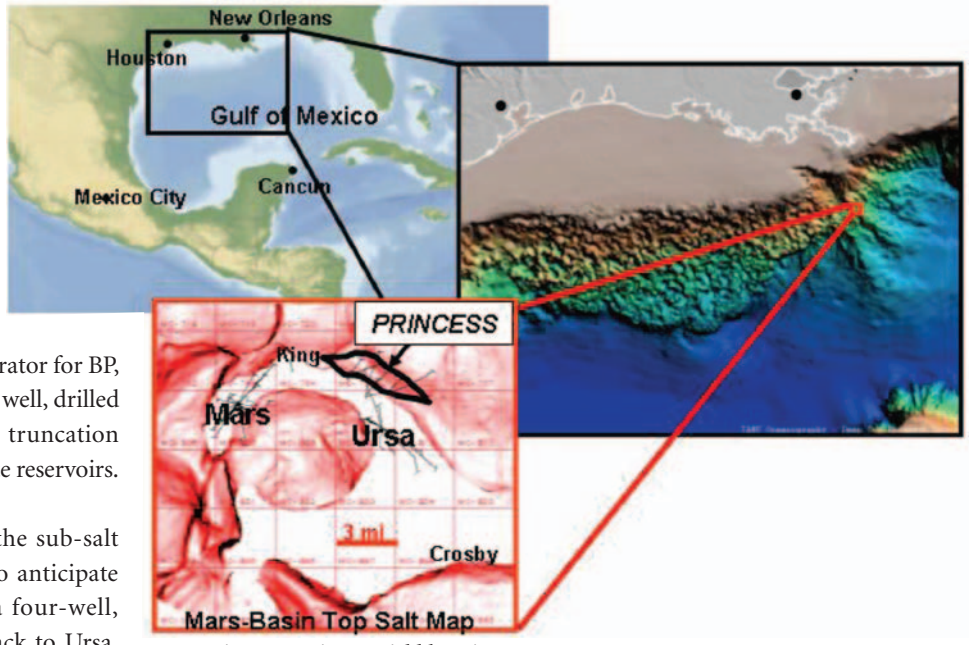


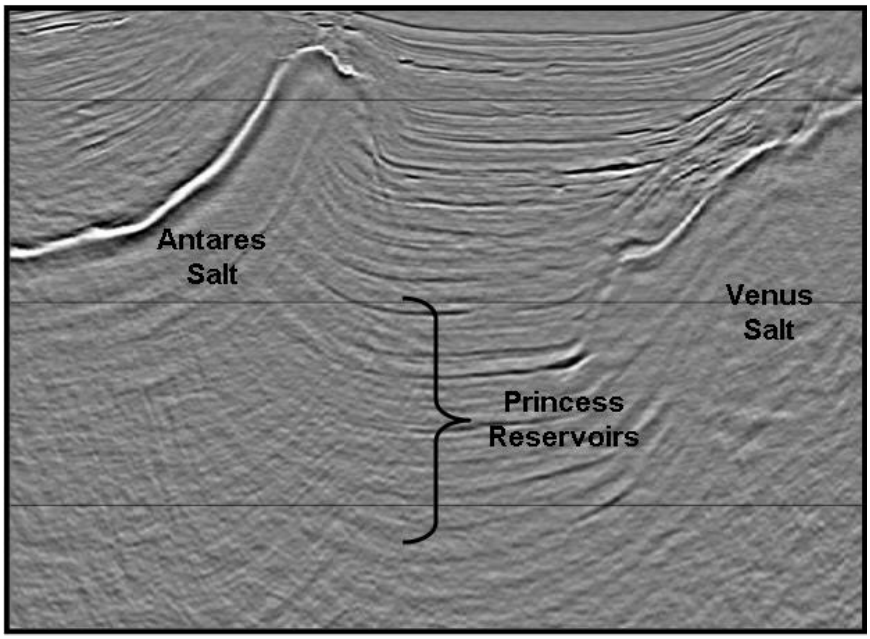
Figure 1. Princess Field location map

Given the large uncertainty associated with the sub-salt setting, the development system was chosen to anticipate many different outcomes. This resulted in a four-well, 15,000 psi-capable, dual flowline sub-sea tieback to Ursa, which can be expanded in the future. First production was achieved late 2002 initially through a well drilled to Princess from the Ursa Tension Leg Platform (TLP), followed in late 2003 by the first production through the sub-sea system, some 3½ years after discovery. Challenges that were met during the development not only pertained to the large subsurface uncertainty, but also to the complexity of drilling high-angle extended reach wells through shallow hazard zones and depleted reservoirs. Princess Field is currently (April 2005) producing approximately 45 MBOPD and approximately 95 MMSCFPD through four wells from two different reservoirs.

Princess Field is hidden completely underneath the East Antares salt body. At the time of discovery, the existing 3D data yielded no sedimentary details of the field or even the position of the large Antares salt overhang (Fig. 2). The discovery well was drilled using a limited depth-migrated long-cable 2D image. A large range in the estimated discovery volumes reflected the uncertainty associated with the limitations of seismic imaging below salt and the upside potential in untested stratigraphy and a possible waterflood. To support initial appraisal and development activities the first 3D image was obtained through executing a pre-stack depth migration (PSDM) on existing 1988 seismic data. This survey proved to be in a reasonable orientation to illuminate sub-salt, but lacked the offset range to provide more than a localized image of the field. Consequently a 3D seismic survey tailored to the specific sub-salt setting was acquired. This dataset has undergone various rounds of reprocessing using a number of pre-stack depth migration algorithms and velocity models (Fig. 3). Evaluation of this survey, integrated with well results and borehole seismic data, has provided a step change in the further characterization of the field. The seismic image at Princess is still evolving with technology in pursuit of further development opportunities in the field. ■

HGS General Luncheon Meeting *continued on page 37*

HGS General Luncheon Meeting continued from page 35



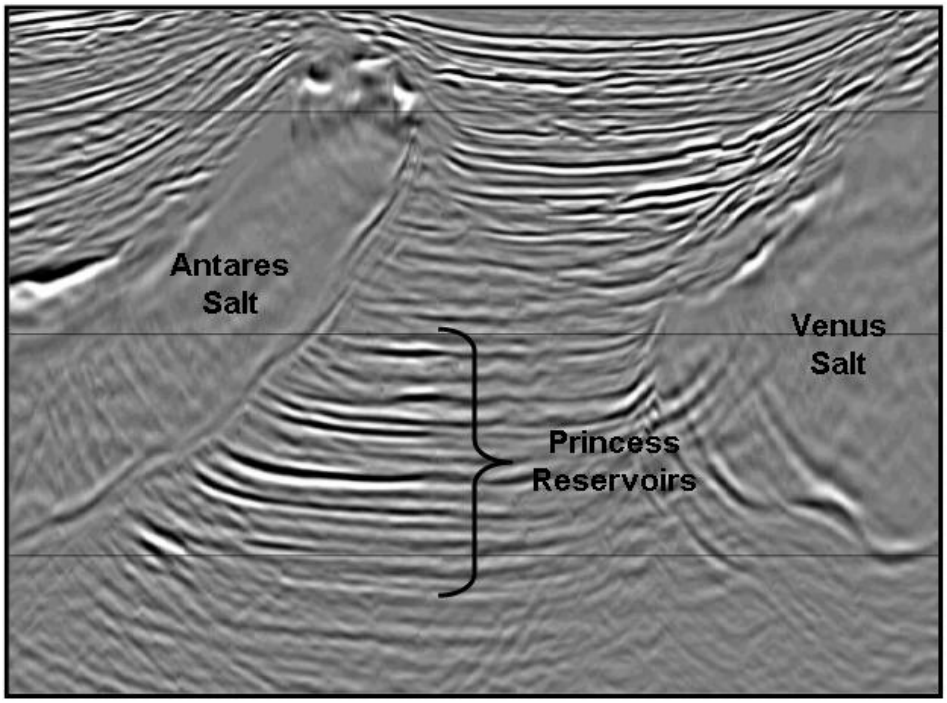


Figure 2. (top) 3D time-migrated image at the time of Princess discovery (N40W acquisition)

Figure 3. (bottom) Current 3D pre-stack depth migrated image from dedicated N30E acquisition

Biographical Sketch

Aafke Bouma has been working for Shell Exploration and Production Company in New Orleans for the past five years as a staff geophysicist in the Mars Basin, deepwater Gulf of Mexico. One of her prime focuses has been the Princess sub-salt development with all its imaging and interpretation challenges. Prior to this assignment she served for four years in Brunei as a production seismologist and field development team leader, working on stacked shallow deltaic heavily faulted reservoirs, which posed a whole different set of challenges. The first five years of her career after joining Shell in 1992 were spent in London, United Kingdom. There she primarily worked in the deepwater Atlantic Margin Venture as exploration geophysicist. Aafke holds an MSc in structural geology with a minor in geophysics from the University of Utrecht in the Netherlands and is an active member of SEG and AAPG.

HGS Northsiders Luncheon Meeting continued from page 25

Biographical Sketch

Anthony D'Agostino is currently a Geologic Advisor for OMNI Laboratories in Houston. He has also worked for Atlantic Richfield, TD Geoscience and Petroleum Geoservices (PGS) in both the domestic and international areas. He received his BS in geology from Illinois St. University in 1978, and his MS from Northern Illinois University in 1980. Since completing his graduate research on Neogene benthic foraminifers of the Ross Sea Antarctica, his attention has been focused on projects in bio-, litho- and sequence stratigraphy, clastic and carbonate sedimentology, and reservoir characterization. Major projects include studies of Miocene sand systems of the Gulf of Mexico, Paleogene Wilcox Group of the Gulf Coast, Oligocene of the Burgos Basin in Mexico, Eocene Misoa Formation of west-central Venezuela and several Paleozoic intervals of the Permian Basin and the U.S. mid-continent. He has published (singly or with co-authors) numerous biostratigraphy papers.

Over the past 2.5 decades Tony has been leader or co-leader of numerous ARCO, AAPG and SEPM field trips. He is a member of and has served in many leadership positions in AAPG, SEPM (national, Gulf Coast and Permian Basin sections), West Texas Geological Society, Houston Geological Society, the Pander Society and, the North American Micropaleontology Section of SEPM (NAMS), for which he was Secretary from 1996 to 2000.

HGS North American Dinner Meeting continued from page 33

zones that accommodated oblique-slip displacement during late Paleozoic time. The Val Verde Basin was the narrow foredeep in front of the Marathon orogenic belt during Mississippian to early Permian time.

Three main stages of late Paleozoic deformation can be recognized across most of the Permian Basin, based on significant changes in lithofacies distributions, various styles of deformation across the basin, and where active deformation occurred over time. Before late Mississippian time, the Permian Basin was a relatively stable tectonic region that was characterized by extensive shallow-water carbonate sedimentation. Minor *en echelon* folding reflected the initial regionally distributed right-lateral transpressional deformation that developed during late Mississippian–middle Pennsylvanian time. These folds probably record the earliest phase of reactivation of deep, late Precambrian–early Cambrian extensional fault systems that predated formation of the Tobosa Basin, an ancestral sag basin that existed prior to late Paleozoic foreland deformation and development of the Permian Basin. Soon after deposition of the Strawn carbonate ramp facies during a middle Pennsylvanian phase of relative tectonic quiescence, renewed and amplified right-lateral convergence (i.e., dextral transpression) enhanced structural relief along the flanks of the asymmetrically faulted anticlines that are widely distributed across the Permian Basin region. Variable erosion across the crests of these asymmetric anticlines created tectonically enhanced unconformities that may have influenced porosity and permeability distributions within sub-unconformity lower and middle Paleozoic strata. 3D seismic volumes from the southwest Midland Basin show that some of these faulted anticlines also have resolvable fault and fracture systems that might have influenced production from Strawn and older strata. During late Pennsylvanian through Permian Wolfcampian time, widespread *en echelon* folding and faulting across the basin diminished, although right-lateral convergence continued and was mostly accommodated along the boundaries of the CBP as oblique-slip deformation and contraction. This last phase of deformation is dominantly expressed as steeply dipping reverse faults and asymmetrical flower structures along the boundary fault zones of the CBP. Major uplift of the CBP also occurred during this last phase of intraforeland deformation and the CBP served as the source for wedge-shaped, upper Pennsylvanian through Permian Wolfcampian synorogenic periplatform deposits. The entire area returned to tectonically stable conditions during Leonardian time, which allowed development of extensive carbonate platforms that built away from the structural margins of the CBP. ■

Biographical Sketch

Steve Dorobek received his BS in geology from Ohio University and his PhD from Virginia Tech. He has been a faculty member in the Department of Geology & Geophysics at Texas A&M University since 1987 and is currently Professor and holder of the M.T. Halbouty Chair in Geology. He has worked in many sedimentary basins worldwide, and his current research focuses on the role of tectonic deformation in carbonate-platform evolution and reservoir distribution.

HGS Undergraduate Scholarship Foundation Presents Six Scholarships

The HGS Undergraduate Scholarship Foundation has been providing scholarships to deserving students since 1984. To date, over $118,500 in scholarships have been awarded. This year the Foundation has awarded six scholarships totaling $10,500. Foundation Trustee Susan Black presented the scholarships to the recipients at the February 13th HGS dinner meeting. Universities included in the undergraduate scholarship program include Lamar University, Sam Houston State University, Stephen F. Austin State University, Rice University, Texas A&M University, The University of Houston, and The University of Texas.

Prior to the dinner meeting, the students and several of the professors participated in a field trip to Core Laboratories. The purpose of the tour was to show the students what it is like to be a geologist in today's petroleum industry. Presentations were made to the students on the relative advantages of a career with large Exploration and Production (E&P) companies, smaller E&P companies, and service companies. Many thanks are extended to Core Laboratories for generously hosting this event. The Foundation intends to make the tour a regular part of our scholarship program and invite other local companies to participate. If you believe that your company might like to host students in the future, please contact John Adamick at jada@tgsnopec.com.

Vitae for our scholarship winners are listed below. These students are to be commended for their accomplishments.

Clayton Coble
Sam Houston State University

Clayton is a senior at Sam Houston State University double majoring in Geology and Geography. He is a member of both the Sam Houston Association of Geology Students and the Geographers of Sam Houston. Clayton is also a lab instructor for a new course called Geological Hazards. His areas of interest are sedimentation and structural geology. Clayton will be graduating in December, 2006 and plans to attend graduate school. Outside of school, Clayton's hobbies include hunting and fishing.

Tony Courville
Lamar University

Tony Courville is a native of Lake Charles, Louisiana. He graduated from Sam Houston High School in 1999, and attended BYU Idaho the following year. After Tony finished his freshman year, he served a two year mission for the Church of Jesus Christ of Latter Day Saints. Following his mission, Tony attended Idaho State University while he waited for his wife Deven to finish her undergraduate degree. Tony and Deven then moved to Lake Charles, Louisiana where Tony attended McNeese State University and began taking all of the geology courses that the institution offered. After competing his studies at McNeese, Tony enrolled at Lamar University where he is now a senior scheduled to graduate in the Fall of 2006. Tony's interests include camping, hunting, attending amusement parks and other outdoor activities. After graduation he plans to start his career in geology. Tony's areas of geological interest include subsurface, environmental and hydrogeology.

Adam Halpert
Rice University

Adam Halpert is a junior at Rice University majoring in Earth Science and Policy Studies. He has participated in research projects in both political science and geology, and is currently working with Dr. Julia Morgan on a project investigating the properties of fault gouge using discrete-element computer simulations. Other awards he has received include the Trustee Distinguished Scholarship, the Century Scholarship and a National Merit Scholarship from Rice. Adam is a student member of the AGU and the SEG. On campus, he is active in intramural sports, Rice's quiz bowl team and the Best Buddies volunteer organization. After graduation in 2007, Adam hopes to attend graduate school to pursue a degree in geophysics.

John Kolvoord
University of Texas

John began college in the geosystems engineering and hydrogeology program, but after two semesters switched to geology. John has been awarded several scholarships including the Austin Gem and Mineral Society, the John A. and Katherine G. Jackson Memorial and the Thomas R. Banks Memorial scholarships. While in school John worked for the Bureau of Economic **Undergraduate Scholarships** *continued on page 43*

HGS Undergraduate Scholarships continued from page 41

Geology, the Subsurface Library, and a small oil and gas exploration company part-time. He graduated with a BS degree in Geology from the College of Geosciences in December, 2005. John is presently working as an intern with Hunt Petroleum Corporation in Houston on an onshore Gulf Coast project. He is currently studying for the GRE and will be applying for graduate school soon. He enjoys all aspects of geology and has a particular interest in sedimentology and stratigraphy. Outside of geology, John enjoys backpacking, playing sports and lapidary arts.

R. Shane McGary
Texas A&M University

Shane is a junior in the geophysics program at Texas A&M University. His current projects include research into the geophysics of hydrothermal vent systems and a field project conducting a multi-dimensional (seismic, EM, magnetic and GPR) geophysical survey of the Odessa meteor crater. He is primarily interested in electromagnetic geophysics and plans to pursue a PhD following graduation in May 2007.

Bobbie Rappe
Stephen F. Austin State University

Bobbie is currently a graduate student at Stephen F. Austin State University where her main interests are hydrology and geochemistry. She received her Bachelor of Science degree in December, 2005. While an undergraduate student at SFA, she was Vice President of Sigma Gamma Epsilon, President of the Geology Student Association, Volunteer Coordinator of the AAPG, and worked at the Soil Lab on campus. While serving as Volunteer Coordinator for the AAPG, the SFA geology department won the National Student Chapter award. While at SFA, Bobbie received awards in mineralogy, geochemistry and geomorphology. She was also awarded the Frank and Eva Hood Goldberry Field Camp Scholarship before heading off to field camp in the summer of 2005. Her hobbies include backpacking, traveling, volunteer work, fossil collecting and photography. Bobbie's plans for the future include working in the field of hydrology and possibly traveling to less fortunate countries to offer her assistance.

Geo-Legends 2006

by ***Paul Britt***

The Geo-Legends Dinner was held January 9, 2006. Following the previous legends dinners examples, the attendance was an impressive 270. Many thanks go to Linda Sternbach for her efforts in organizing an outstanding meeting.

At Geo-Legends we also had some of the new generation of geologists volunteer to help with the distribution of "Rose's Rules" from Pete Rose and with the collection of the "question cards" for the question-and-answer portion of the meeting. We thank the following members for greatly contributing to the smooth operation of the meeting: Emily Wall, Christie Rogers and Shawn Adamson from ExxonMobil, and Mike Wall, Robyn Marchand and Kari Parsons from Kerr McGee. ■

The Geo-Legends (left to right) Peter Rose, Arnold Bouma, Peter Vail and Albert Bally

(left to right) Jeff Lund, Peter Rose and Dave Rensink

Charles and Linda Sternbach

Andre Droxler and Gabor Tair

(left to right) Craig Moore, Paul Hoffman, Denise Stone and Matt Boyd

NAPE 2006

*by **Paul Britt** • photos by **Edie Bishop***

NAPE 2006 was held at the George R. Brown Convention Center on Thursday and Friday, February 2–3. Attendance exceeded expectations, with over 12,500 registered by the end of the show. Prospects from all over the world were presented, with an obvious emphasis on Gulf Coast regions, and deals were being made and prospects were selling out on the floor of the show. While NAPE is considered to be a great networking venue, in fact, many business deals were being conducted, or will be closed shortly, due to their presence in the show. The exhibit hall had 28 aisles of prospect and vendor booths, almost too many to cover in the one and one-half days that the Expo spans.

The HGS is a sponsoring organization of NAPE, and the HGA was very active in their volunteering for the Expo. The HGS also had a booth on the exhibit hall floor. The photographs on this page were provided by Edie Bishop, HGS/HGA Liason. ■

Let the deals begin!

HGS Booth (left to right) Marvin Smith, Ken Nemeth, Mac MaKinney, Paul Carter

(left to right) Norma Jean Jones, Hellen Hutchison, Marilyn Burger, Suzanne Howell

(left to right) Jim Ragesdale, Dick Bishop, Marvin Smith

Bill Howell (center) wheeling and dealing.

HGS Short Course Offerings Announced for AAPG 2006

*by **Kara Bennett,** AAPG 2006 Short Course Chairman*

Be sure to register early for the HGS short courses at the AAPG 2006 Annual Convention. There is a great line-up this year, ranging from foundation classes for early career geoscientists to business-oriented classes to technical opportunities that are once-in-a-lifetime offerings.

An Ethics Lunch lecture by Dr. Chris Mathewson from Texas A&M is new this year, intended to fulfill the annual continuing education requirements for Texas licensed geoscientists. On Saturday, April 8, all short courses will break at the same time for lunch, so you can attend the Ethics Lunch lecture, then return to the course in the afternoon. You must register separately for the Ethics lunch program, and of course if you prefer, you can attend only the Ethics lunch.

Box lunches and refreshments are included in the cost of all AAPG short courses this year. The AAPG 2006 HGS short course offerings are:

- **By-Passed Pays, By-Passed Plays**, a half-day program of case histories presented by Bill DeMis and Dan Hartmann. This course will present case histories you will see nowhere else, and it's more than tight sands and low-resistivity, low-contrast pays!

- Introduction to Effective Reservoir Modeling, a workshop for teams doing 3D-reservoir modeling projects from the BP Reservoir Modeling team of Kirk Hird, Lisa Towery and Robert Trythall.

- Dan Tearpock's **Petroleum Reserves: Avoiding Write-downs — Overview of Recommended Geological Practices**, which has been a very popular HGS course for anyone wanting to make accurate reserve estimates.

- Ted Beaumont and Doug Strickland's **Creative Petroleum Exploration**, which can open your eyes to new ways to see existing data and find new reserves.

- **Seismic Petrophysics**, presented by Roger Young and Robert LoPiccolo, will show you how to mesh subsurface and seismic data sets to develop a seamlessly integrated geological interpretation.

- **Packaging and Selling your Prospect**, an excellent ½ day how-to guide for presenting prospects to management and investors, presented by HGS President-elect Steve Brachman.

- A ½ day review course for geoscientists preparing to take their licensing exams called **"So You Want to Pass the Professional Geologist's Licensing Exam?"** This is a first-time offering, by request of many HGS members.

- **Introduction to Mudlogging** will provide a great introduction or review of the basics of mudlogging, complete with on-site mudlogging trailer. This course is aimed at early career geoscientists and those of us that haven't seen the inside of a logging trailer for a while. It's sponsored (lunch too!) and there will be no cost to attendees, but you must register to attend.

Plus there are a number of excellent core workshops and other short courses to be offered, including the popular **"How to be an Independent"** workshop. For a complete listing, see http://www.aapg.org/houston/courses.cfm. Also, please note that an incorrect date was listed in the convention announcement for the **Core Analysis for Sorbed Gas Reservoir Systems** EMD course. This 1-day workshop will be given Friday, April 7.

Be sure to register early to avoid the disappointment of having a course you really want to take cancelled. The Houston geoscience community tends to register late for short courses, but for AAPG, courses must meet their minimums by early March to avoid cancellation. And of course there's always the chance that your course will sell out—so you have two good reasons to register today! ■

HGS Welcomes New Members

Effective February 1, 2006

ACTIVE

William Babcock
Nathan Bedford
Tom Cheatham
Carlotta Chernoff
Phillip Duggin
James Forsythe
Laurens Gaarenstroom
Robert Hargett
David Wm Harris
Robert Harvey
Jennifer Highnote
Frederick Hoffman
Renzo Huijsmans
Paul Jones
Mitsura Kamon
Ryan Krueger
Danuta Lipscomb
Maynard Little
William Mitchell
Jerry Moore
William Parker
Olatunde Soyinka
Antonio Tisi
Robert Webster
Ann Worrel
Kimberly Wright

ASSOCIATE

Spencer Davies
Skip Pack

Welcome New Members

Government Update

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

Texas Board of Professional Geoscientists

The Texas Board of Professional Geoscientists (TBPG) proposes amendments to 22 Texas Administrative Code Chapter 851, §851.28, concerning license renewal. The proposed amendments outline renewal procedures for licenses that are allowed to expire for over 60 days. The statute currently stipulates that a license that is not renewed within 60 days past its expiration date cannot be renewed, but does state that "the board by rule may establish conditions for the re-issuance of a license that has lapsed, expired, or been suspended or revoked." Thus, as per the proposed amendments, a license not renewed within 60 days past its expiration date will now be considered lapsed and can be renewed according to the conditions set forth in the proposed amended rule. In addition, a license that is allowed to lapse for over a year but less than three can also be renewed in accordance with the proposed amended rule. This would change current TBPG policy stating a license becomes permanently expired when not renewed within one year of its expiration date. The amended rule also stipulates that the Board may suspend or revoke a license as disciplinary action for violation of Board law or rules. The amended rule outlines how a revoked or suspended license can be reinstated. For more information go to http://www.sos.state.tx.us/texreg/sos/PROPOSED/22.EXAMINING%20BOARDS.html#350.

The TBPG has also released draft versions of proposed amendments to Rules 851.30, Firm Registration, and 851.31, Temporary Licenses. Firm registration will be required of all firms that engage in the practice of professional geoscience for the public in Texas. Temporary licenses are for persons who hold PG licenses or their equivalent in other states or countries. The proposed rules are located at the TBPG website, http://www.tbpg.state.tx.us/.

During an audit of all P.G. licensee files the TBPG discovered that numerous licensees have yet to provide the agency with a copy or sample of their P.G. seal, as required by §851.20(m) in the P.G. rules. Beginning February 20, 2006, notification letters were sent to these licensees asking them to comply with the rule. A list of people who need to submit a copy of their P.G. seal can be found at http://www.tbpg.state.tx.us/noseal.htm.

Even if you haven't received a notice, you should check to see if you are on this list. The TBPG maintains an electronic file of your stamp and in a number of cases the copy was illegible. If you use an embosser, you will also be on this list. Embossing your stamp, rather than using an inked stamp, is legal, but won't show up when copied, which is normally not a problem. However, it makes it more difficult for the TBPG to copy it for their files. The TBPG says that they'll lightly ink it when it comes in so it will show up on the copy. You don't need to ink the embossed seal.

RRC GIS Map Viewer

You can now locate mapped oil wells, natural gas wells and pipelines on the Texas Railroad Commission's (RRC's) website: www.rrc.state.tx.us under "What's New @ The RRC?" Public GIS Map Viewer for Oil, Gas and Pipeline Data or go to http://www.rrc.state.tx.us/gis/index.html.

The information found on the Geographic Information System (GIS) map viewer includes oil wells, natural gas wells, plugged wells, dry holes, injection and disposal wells and permitted locations for new wells. Pipelines that carry petroleum crude oil and natural gas also can be viewed through these maps. The information provided by the maps is continually being updated and refined as permit applications are received by the RRC. Oil and gas well data and pipeline data are obtained from public records at the RRC. The base map information was obtained from the U.S. Geological Survey 7.5 minute quadrangle maps, and the patent survey lines from Texas General Land Office maps were projected onto the U.S. Geological Survey base.

To use the public viewer, Microsoft Internet Explorer version 5.5 or higher or Netscape version 6.1 or higher with Javascript enabled are required. In addition, the public GIS viewer uses pop-up windows, so users need to disable pop-up blocking software when using this viewer.

AGI Government Affairs Monthly Review (December 2005)

Congress Reviews the National Environmental Protection Act

Congress is showing growing interest in revisiting and perhaps rewriting the nation's most comprehensive environmental legislation, the National Environmental Protection Act. The act was established in 1969 and most recently amended in 1982. The House of Representatives' Committee on Resources established two task forces (Task Force on Improving the National Environmental Policy Act and the Task Force on Updating the National Environmental Policy Act) to consider changes to NEPA. On December 21, 2005, the two task forces released a joint report and the report is open for public comment until February 6. All comments about the report must address specific recommendations and must be received in writing.

The 30-page report and instructions for submitting comments is available as a pdf document from the House Resources Committee Web site at http://resourcescommittee.house.gov/nepataskforce/report/nepareport_finaldraft.pdf.

International Year of Planet Earth, 2008

On December 22, 2005, the United Nations General Assembly adopted by consensus a **Government Update** *continued on page 52*

Government Update continued from page 51

Resolution by the United Republic of Tanzania and co-signed by 82 nations, to proclaim 2008 as the United Nations Year of Planet Earth. The press release stated,

"By a draft on the International Year of Planet Earth, 2008, which the Committee approved without a vote on 11 November, the Assembly would declare 2008 the International Year of Planet Earth. It would also designate the United Nations Educational, Scientific and Cultural Organization (UNESCO) to organize activities to be undertaken during the Year, in collaboration with UNEP and other relevant United Nations bodies, the International Union of Geological Sciences and other Earth sciences societies and groups throughout the world. Also by that draft, the Assembly would encourage Member States, the United Nations system and other actors to use the Year to increase awareness of the importance of Earth sciences in achieving sustainable development and promoting local, national, regional and international action."

Geoscientists and geoscience societies are strongly encouraged to participate in the International Year of Planet Earth (IYPE).

More information about IYPE is available at http://www.esfs.org/.

Energy Department Revises Energy Prices Forecasts

On December 12, 2005, the Energy Information Administration of the Department of Energy revised its 20-year forecast on energy prices. The EIA concluded that oil prices will remain near about $45 per barrel and average about $54 per barrel in 2025 compared with earlier projections of prices dropping to $30 per barrel. Also predicted were lower prices for natural gas, falling from current highs of $14 per thousand cubic feet to less than $5 per thousand cubic feet as long-term demand wanes, especially for electricity production.

The EIA lso scaled back the expected growth of liquefied natural gas in the United States as worldwide demand increases, forecast that coal will remain the primary fuel for producing electricity until at least 2030 and predicted United States energy demand will increase by 1.1% per year until 2030.

The full report is available at http://www.eia.doe.gov/oiaf/aeo/.

Multihazard Mitigation Report

The Multihazard Mitigation Council of the National Institute for Building Sciences released its report on the cost of mitigation. The study shows that money spent on mitigation saves lives, reduces risks and reduces economic losses. On average for every $1 spent on mitigation, the United States will gain about $4 in future benefits. FEMA grants to mitigate hazards from 1993 to 2003 are expected to save at least 220 lives and prevent about 4,700 injuries over the next 50 years. Societal benefits from FEMA grants over the same period yielded a discounted present value of $14 billion compared with the $3.5 billion employed in hazard mitigation programs. The potential annual savings to the federal treasury is about $970 million compared to $265 million per year in costs for the grants. The council recommends that the federal government invest in mitigation on an ongoing basis before and after disasters, increase knowledge and promote institutional commitments to mitigation at the local level and support a structured process for the assessment of buildings and infrastructure before and after disasters.

The full report is available at www.nibs.org/MMC/mmchome.html.

Going Back to the Moon

Paul Spudis, a lunar scientist at Johns Hopkins University's Applied Physics Laboratory and a member of President Bush's Commission on the Implementation of U.S. Space Exploration Policy, published an editorial in the Washington Post on December 27, 2005, on why the United States should go back to the moon. He stated that lunar exploration was important for science, inspiration and resources.

The full text of Spudis' editorial is available at http://www.washingtonpost.com/wpdyn/content/article/2005/12/26/AR2005122600648.html.

Geoscience Teacher Training Grants from NSF

The National Science Foundation (NSF) Directorate for Geosciences has initiated a grant program called GEO-TEACH. The program will support projects to improve the quality of geoscience instruction, primarily at middle- to high-school levels. The deadline for submitting a letter of intent is February 15, 2006, and the deadline for proposals is April 17, 2006. More information about the program is available at http://www.grants.gov/search/search.do?mode=VIEW&oppId=7472.

Education Teachers Can Spend a School Year in Washington DC

The Einstein Fellowship program brings outstanding mathematics, science and technology education teachers to Washington, DC to spend a school year working on Capitol Hill or in one of several participating federal agencies. The purpose of the program, as stated in the Albert Einstein Distinguished Educator Act of 1994, is to provide outstanding educators with an opportunity to serve in the public policy arena and to bring the expertise, unique insights and know-how of classroom teachers to the Congress and other appropriate branches of the Federal government. Application deadline has been extended until January 16, 2006. For more information go to http://www.triangle-coalition.org/ein.htm. ■

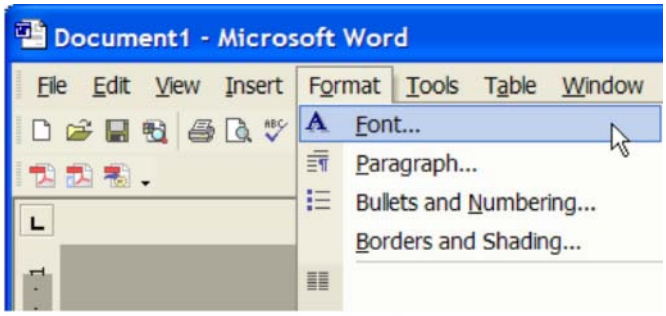
Converting Webpages Into Text and More About Saving HTML Files

Last month I talked about saving Webpages as HTML files on your hard drive. These are useful if you want to show someone else an interesting Webpage by attaching the file to an e-mail; HTML files are also nice if you want to view a Webpage again without having to get on the Internet.

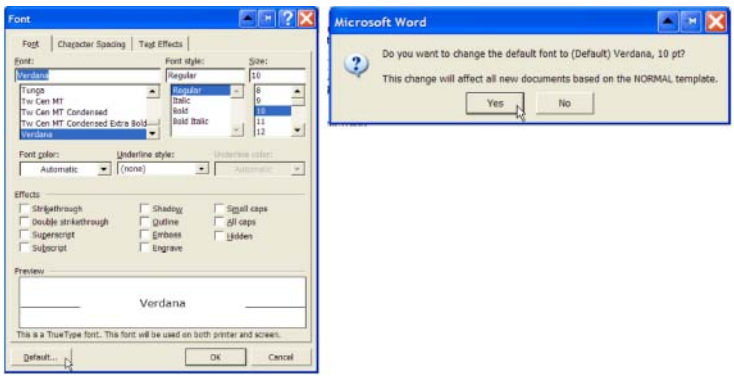
What about saving the text content of a Webpage as a Word file? If you have tried to copy and paste content from a Webpage into Word you have probably had mixed success. If the Webpage contains images, including ads, when you do a simple Edit>Select All and then paste it into Word, you probably found that the paste process takes a long time. The resulting Word file can be very large and contains all kinds of graphics that you didn't expect. And worse, the text is usually in an undesirable format.

Here is what I suggest for saving text on the Web as a Word file: first set your Word default font settings to what you like to use. Go to Format>Font and then select the type of font, font style (regular, bold, italic, etc.) and the font size you prefer. Windows' default is Times New Roman, but you can select what you prefer. Then select "Default". Word will ask you if you really want to change your default settings and you should select "Yes". You can always change the default again later.

Webnotes *continued on page 54*



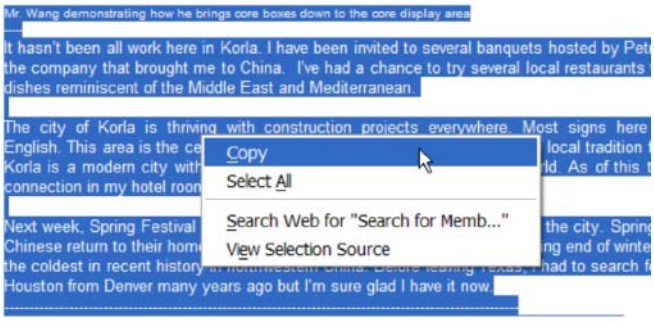
Select Format>Font from the Word tool bar



Select the Font, Font Style and Size you like. Select "Yes" when asked if you want this to be your default setting.

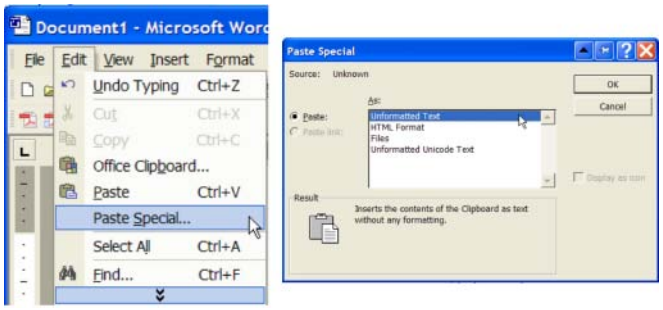
Webnotes continued from page 53

Now you are ready to take text off the Web and transfer it into a Word document. Find the Webpage you want and manually select what you wish to copy, trying to avoid graphics or unwanted text. Now you can copy it by either typing CTRL + C, right clicking with your mouse and selecting "copy" or using the pull-down menu command Edit>Copy.



Right click with your mouse and select "Copy".

Now go to your open Word document and, rather than doing a simple paste, go to the menu bar and select Edit>Copy Special>Unformatted Text. The text will paste into Word in the default font, font style and font size that you set as your default. I also like to go back and copy the URL from the Web browser address line so I can easily refer back to the source.



From the Word tool bar, select Edit>Paste Special. Then select "Unformatted Text" and select "OK".

It hasn't been all work here in Korla. I have been invited to several banquets hosted by PetroChina and GCC Group Corp, the company that brought me to China. I've had a chance to try several local restaurants that specialize mostly in lamb dishes reminiscent of the Middle East and Mediterranean.

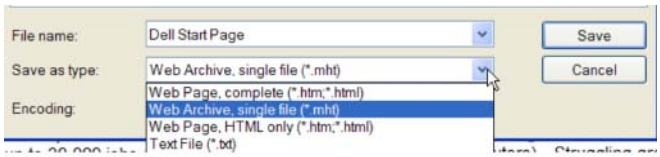
The city of Korla is thriving with construction projects everywhere. Most signs here are in Chinese, Arabic and English. This area is the center of the ancient Silk Routes and much of the local tradition focuses on that mythical past. Korla is a modern city with all the conveniences found in the western world. As of this trip, I now have a DSL intenet connection in my hotel room!

Next week, Spring Festival begins in China. Tonight I hear fireworks all over the city. Spring Festival is a time when most Chinese return to their home towns to be with family and celebrate the coming end of winter. This winter has been among the coldest in recent history in northwestern China. Before leaving Texas, I had to search for the down jacket I brought to Houston from Denver many years ago but I'm sure glad I have it now.

Here is your pasted output in Word.

When I submitted last month's "Webnotes" on saving HTML files to preserve Web pages, *Bulletin* Editor Paul Britt correctly pointed out that different Web browsers (Internet Explorer vs. Mozilla Firefox, for example) have somewhat different options for saving Webpages as HTML files.

If you use Internet Explorer(IE), after you copy the Webpage and select File>Save As, you have several options available. I will briefly describe them.



Internet Explorer Save Web Page Options.

- Web Page complete (*.htm, *.html): this will save every piece of the Webpage including image files in a folder. I don't recommend this option unless you want to re-create the Webpage for some reason.
- Web Page HTML Only (*.htm, *.html): this is the option I described in February's Webnotes. This will preserve most of the Webpage's content and graphics but may not preserve all graphic elements.
- Web Archive, single file (*.mht): this option captures and reproduces the Webpage in its full form including all graphics, so this is probably the best option for you.
- Text file (*.txt): this will save the text only. When you want to open it using Word you will have to change the "Files of Type" at the bottom of the "File Open" dialog box from "All Word Documents" to "All Files" and then you must step through a Wizard to open the file in Word. Honestly, it's kind of a pain and the end result is a Word document with a very messy paragraph and font format that will require a fair amount of clean-up before you can use it.

If you use Firefox, the options are somewhat simpler and do not include the Web Archive selection.

- Web Page complete is exactly the same as it is in IE.
- Web Page HTML Only is exactly the same as in IE.
- Text file is the same as in IE.
- All Files is the same as Webpage HTML only. ■

Mozilla Firefox Save Web Page Options.

Editor's Note: *While it is okay to copy web content for personal use, the user should keep in mind that most content is copyrighted by default, and if it is to be used for reproduction or distribution, written permission should be sought from the author before such use.*

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:

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

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

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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: _____
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Company: _____
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Work Phone: _____ *Fax Number:* _____
Circle Preferred Mailing Address: Home Office
Professional Affiliations:
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Professional Interest:
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❑ International E&P
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❑ 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

HGA *and* GeoWives **News**

HGA

*by **Edie Bishop**, HGS/HGA Liaison*

Another successful Winter NAPE was held at the George R. Brown Convention Center on February 1 through 3. To walk into the exhibit hall and feel the energy reaffirms that the petroleum industry is alive and doing very well! Thanks go to the many Society and Auxiliary members who braved the early morning hours to assist with the registration process. Individual thanks go to Winona LaBrant Smith, Mary Harle, Betty Alfred, Linnie Edwards, Vicki Pickering, Sally Blackhall, Margery Ambrose, Jim and Sara Nan Grubb, Donna Parrish, Sara Parr, David and Lois Matuszak, John and Helen Thomas, Jennifer Biancardi, Tom and Annette Mather, Daisy Wood, Myrtis Trowbridge, Ann Koster, Paula Fowler, George Bole, Dick Bishop, Dene Grove, Connie Griffith, Suzanne Howell, Elinor Macmillan, Norma Jean Jones and Mikki Wunderle. A special thanks to Hellen Hutchison for making us part of this exciting event.

Moving to the social side of the Auxiliary, Game Day again proved to be a resounding success. Daisy Wood and her committee provided a wonderful program with a variety of games, great door prizes and a scrumptious luncheon that is the trademark of the Junior League Tea Room. The benchmark of a successful event is the attendance and that number was approximately two-thirds of the membership total! Hats off to Daisy and her team for this outstanding event.

Looking forward, March 26 is the date of the Auxiliary's highlight of the social year. To quote our First Vice President Winona LaBrant Smith, "Come, enjoy a bus trip from Houston to the Grand Theater in Galveston to view *Thoroughly Modern Millie.* This musical, a winner of six Tony Awards, is set to the glorious music of the 20s. View frisky flappers, a dashing leading man and a dragon-lady of villainy. A box lunch with wine and beverages will be provided on the bus. What a memorable way to spend a Sunday afternoon. This trip will be limited to 56 persons—in the order received." Please send your inquiries to the Event Chairman Sally Blackhall.

"See you at something-HGS"

GeoWives

*by **Dene Grove***

GeoWives Spring Trip

On March 16 the GeoWives will travel to La Grange for another day with history. La Grange was first settled in 1831, at a place where an old buffalo trail crossed the Colorado River. We will visit the State Park where the tombs of the fighters in the Dawson Massacre of 1842 and the Mier Expedition of 1844 are. Both fought against Mexico while Texas was a republic. LaGrange is also in the central part of the area that was settled by Czechs in the last part of the 19th century. We will visit the Czech Heritage Center, where a replica of a Czech village is being built. The Fayette County courthouse (built in 1891), where Marvin Zindler had his wig pulled off by the sheriff during the "Chicken Ranch War" of *The Best Little Whorehouse* in Texas fame, has been renovated along with the 1886 jail. We shall have time on the square for lunch, touring and shopping. Out last stop will be at a candy factory for a tour and some free samples to convince us to buy more.

The day will start at Memorial Drive Presbyterian Church at 8:15 a.m.. We will return between 5:30 and 6:00 p.m.. The cost is $7.00 for entrance fees and miscellaneous items. We will have lunch together but will be able to order and pay by separate checks.

Send your check (made payable to GeoWives) to Martha Lou Broussard, 3361 Bellefontaine, Houston, TX 77025, by Monday, March 13, to secure your reservation. Our thanks to our hostesses Martha Lou Broussard and Linnie Edwards for what promises to be an entertaining and educational event. Guests are welcome. ■

As a HGA member you are invited to join

GeoWives

2005–2006 dues are $7.50

make check payable to *GeoWives* and mail to:

Dene Grove
12715 Pebblebrook
Houston, Texas 77024

Please provide the following

Name: _____

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I will help plan a GeoWives activity ☐
I will serve on a committee ☐
Notification / Phone Committee ☐
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My home is available for a meeting ☐

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