



HGS Bulletin

Volume 48 Number 6

Houston Geological Society

February 2006

***Structural Architecture, Petroleum
Systems and Geological Implications
for the New Hydrocarbon Province
of the Covenant Field Discovery,
Sevier County, Utah***

Page 37



**Cover Art Contest Winner
Marti Lund**

SHOPPING_{FOR} Well Log Data?

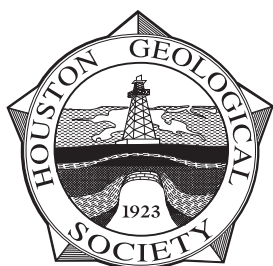
- World's Largest Online Well Log Collection
- World's Largest Digitizing Capacity
- Internet Access Via LOG-LINE Plus!®
- Multiple High-Quality Data Formats Available
- Proven Data Management Solutions
- Integration Via SilverWire™



Well Log

Your Well Log Data Marketplace

Have you seen us lately?
www.a2d.com



The Bulletin

Houston Geological Society

Volume 48, Number 6

February 2006

In Every Issue

- 5 From the President**
by Dave Rensink
- 9 From the Editor**
by Paul Britt
- 7 Member News and Announcements**
- 30 GeoEvents Calendar**
- 53 Webnotes**
- 55 HGS Membership Application**
- 56 HGA/GeoWives**
- 57 Professional Directory**

Houston Geological Society

OFFICERS

David Rensink *President*
Steve Brachman *President-elect*
Linda Sternbach *Vice President*
Ken Nemeth *Treasurer*
Cheryl Desforges *Treasurer-elect*
Susan Black *Secretary*
Paul Britt *Bulletin Editor*
Bill Rizer *Editor-elect*

DIRECTORS

Jim Doyle
William Dupré
Elizabeth Fisher
Erik Mason

HGS OFFICE STAFF

Lilly Hargrave
Joan Henshaw
Deborah Sacrey, *Office Committee Chairman*

WEBMASTER

Lilly Hargrave

EDITORIAL BOARD

Paul Britt *Editor*
Bill Rizer *Editor-elect*
Elsa Kapitan-White *Advisory Editor*
James Ragsdale *Advisory Editor*
Charles Revilla *Advisory Editor*
Lilly Hargrave *Advertising Editor*
Lisa Krueger *Design Editor*

The Houston Geological Society Bulletin (ISSN-018-6686) is published monthly except for July and August by the Houston Geological Society, 10575 Katy Freeway, Suite 290, Houston, TX 77024. Phone: 713-463-9476, fax: 713-463-9160

Editorial correspondence and material submitted for publication should be addressed to the Editor, Houston Geological Society Bulletin, 10575 Katy Freeway, Suite 290, Houston, TX 77024 or to Editor@hgs.org

Subscriptions: Subscription to this publication is included in the membership dues (\$24.00 annually). Subscription price for nonmembers within the contiguous U.S. is \$30.00 per year. For those outside the contiguous U.S. the subscription price is \$46.00 per year. Single-copy price is \$3.00. Periodicals postage paid in Houston, Texas.

POSTMASTER: Send address changes to Houston Geological Society Bulletin, 10575 Katy Freeway, Suite 290, Houston, TX 77024

Technical Meetings

- 21 HGS General Dinner Meeting**
Exploration Implications of Different Structural Styles and Processes of the Ultra-Deep Shelf Province, Northern Gulf of Mexico
- 25 HGS International Explorationists Dinner Meeting**
New Insights into South Atlantic Rifting from the Santos and Campos Basins, Offshore Brazil — A Tale of Two Basins
- 27 SIPES Luncheon Meeting**
Twilight in the Desert: The Coming Saudi Oil Shock and the World Economy
- 28 HGS Northsiders Luncheon Meeting**
West Cameron 76 Field and Deep Lower Tertiary Framework Revealed Using Sequence Stratigraphy Integrated with SPICE
- 35 Joint HGS/HAPL Luncheon Meeting**
MMS Plan for Deep- and Ultra-Deepwater Leasing in the Gulf Of Mexico and Assessing 2005 Hurricane Damage to the Outer Continental Shelf
- 37 HGS North American Explorationists Dinner Meeting**
Structural Architecture, Petroleum Systems and Geological Implications for the New Hydrocarbon Province of the Covenant Field Discovery, Sevier County, Utah

Other Features

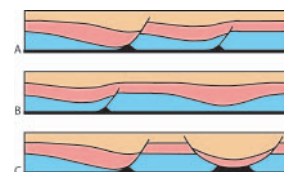
- 13 AAPG Convention Set for April 9-12**
by AAPG Convention Organizing Committee
- 39 Working for America's Energy Future and a Quality Environment**
by Chris Oynes
- 41 Volunteers of the Month**
- 43 Government Update**
by Henry M. Wise and Arlin Howles
- 50 The Ozone Hole—A Crisis Averted?**
by Bill Rizer

About the Cover: This month's cover photo was submitted to the Bulletin photo contest by Marti Lund, a member of the HGA.

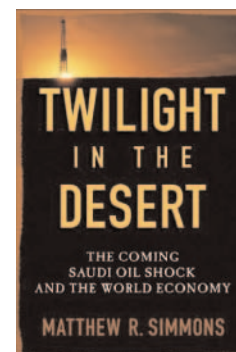
The photo was taken from the South Rim of the Chisos Mountains at Boot Canyon Trail, in Big Bend National Park, looking south into Mexico. In the near distance, Elephant Tusk and Backbone Ridge can be seen. The Rio Grande River is visible in the center of the photo. It is said that from the view at the South Rim, more square miles are visible than from any other vantage point in North America. Credit for technical support in providing the photo to the Bulletin also goes to Dick Shanor at Access Exploration.



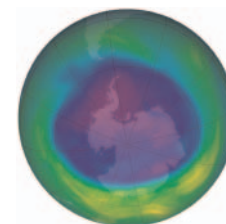
page 13



page 23



page 27



page 52

PETRA

depths

visions

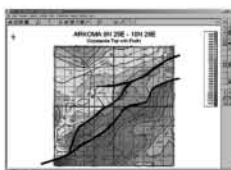
innovations

results

that
exceed

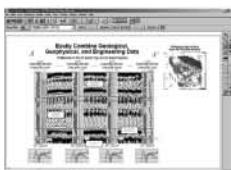
all

others.
now.



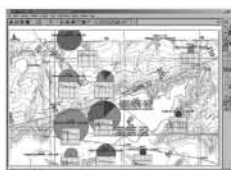
CONTOURING

- Faulted contours
- Isopachs
- Volumetrics
- Grid operations
- New flexing options



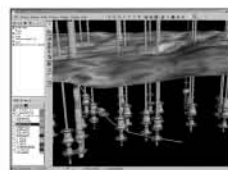
CROSS SECTIONS

- New Unassigned Tops
- Digital and/or Raster
- Geocolumn shading
- Stratigraphic/Structural
- Shade between crossover
- Dipmeter data



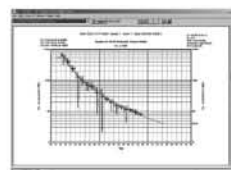
MAPPING OPTIONS

- Expanded GIS Functions
- Bubble maps
- Production charts
- Log curves
- Posted data
- Highlighted Symbols



3D VISUALIZATION

- Deviated wellbores
- Digital logs
- Grid surfaces
- Tops, Shows and Perfs
- Land grid overlay
- Map images



DECLINE CURVES

- Compute EUR, RR, etc.
- Hyperbolic or exp.
- Rate/Time or Cum P/Z
- User defined Econ. Limit
- User defined Extrap. Time

PETRA® delivers the industry's only easy-to-use and affordable integrated solution for today's workflows. It provides multi-user access to large projects through geological, petrophysical and engineering analysis tools. The PetraSeis™ option extends PETRA® into 2D/3D seismic interpretation with practical tools such as RasterSeis™. Download a trial version at www.geoplus.com, or call us at 888-738-7265 (Houston: 713-862-9449 / Calgary: 403-264-9523) for more product information.



THERE IS A DIFFERENCE

PETRA®



Board of Directors 2004–05

http://www.hgs.org/about_hgs/leadership.asp					
President (P)	Dave Rensink	Apache Corp.	713-296-6332	dave.rensink@apachecorp.com	
President-Elect (PE)	Steve Brachman	Pogo Producing	713-297-5088	brachman@pogoproducing.com	
Vice-President (VP)	Linda Sternbach	Kerr-McGee Corp.	281-673-6839	LSternbach@kmg.com	
Secretary (S)	Susan Black	Newfield Exploration Company	281-847-6170	sblack@newfld.com	
Treasurer (T)	Ken Nemeth	Schlumberger	713-513-2327	knemeth@houston.oilfield.slb.com	
Treasurer -Elect (TE)	Cheryl Desforges	Ryder Scott Company	713-816-9202	Cheryl_Desforges@ryderscott.com	
Editor (E)	Paul Britt	Texplore, Inc.	281-494-3155	pbritt@texplore.com	
Editor-Elect (EE)	Bill Rizer	W. D. Rizer Consulting	281-392-0613	rizerwd@consolidated.net	
Director 04-06 (D1)	Bill Dupré	University of Houston	713-743-3425	wdupre@uh.edu	
Director 04-06 (D2)	Elizabeth Fisher	Fugro-Jason	281-859-5377	eafisher@jasongeo.com	
Director 05-07 (D3)	Jim Doyle	ENI Petroleum	713-393-6189	jim.doyle@enipetroleum.com	
Director 05-07 (D4)	Erik Mason	Shell	281-544-2924	erik.mason@shell.com	
Committee	Chairperson	Phone	Email	Board Rep.	
AAPG Delegate Foreman	Paul Hoffman	713-783-7880	phoffman@coxperkins.com	D3	
AAPG Convention Chairman	Charles Sternbach	281-679-7333	carbodude@pdq.net	P	
Academic Liaison	Alison Henning	832-203-5016	Alison@henning.com	D3	
Advertising	Lilly Hargrave	713-463-9476	ads@hgs.org	E	
Advisory	Open			P	
Arrangements	Lee Boatner	713-586-5728	Lboatner@houston.rr.com	VP	
	Gordon Marney	281-381-5257	gmarney@sbcglobal.net	VP	
Awards	Mike Deming	281-589-6093	demingy2k@aol.com	D3	
Ballot	Don Scherer	713-723-8484	donnfransch@houston.rr.com	P	
Calvert Memorial Fund (Graduate Students)	Carl Norman	713-461-7420	dod895@aol.com	PE	
Community Outreach Committee	Walter Light, Jr.	713-823-8288	wthunderx@aol.com	P	
	Cindy Gillespie	832-969-4385	clgillespie1@sprintpcs.com	P	
Continuing Education	Leta Smith	713-369-0253	leta.smith@ihsenergy.com	D2	
Directory	Michael S. Benrud	713-785-8700	mbsenrud@houston.rr.com	TE	
Earth Science Week–ESW Gen.	Martha McRae	713-869-2045	mmcrae1@houston.rr.com	D2	
Earth Science Week–Logistics	Jennifer Burton	832-636-8357	jennifer_burton@anadarko.com	D2	
Engineering Council of Houston	Claudia Ludwig	713-723-2511	petra@hal-pc.org	D3	
	Richard Howe	713-467-2900	rghowe@pdq.net	D3	
Environmental & Engineering Geology	Bruce Woodhouse	281-600-1095	Bruce.Woodhouse@erm.com	VP	
Exhibits	Mac McKinney	281-353-0661	wmckinney@houston.rr.com	D4	
Field Trips	Neal Immega	713-661-3494	n_immega@swbell.net	D2	
Finance	Open			T	
Fishing Tournament	Bobby Perez	281-240-1234	r_perez@seismicventures.com	D4	
Foundation Fund (Undergraduate Students)	John Adamick	713-860-2114	jada@tgsgeo.com	PE	
Fund Raising	Mike Jobe	713-659-1221	jmjobe@walteroil.com	P	
	Bonnie Milne-Andrews	832-661-6666	bonnie.milne@swiftenergy.com	P	
Global Climate Change	Jeffrey Lund	713-960-0971	jwl5127@aol.com	D3	
Golf Tournament	Allan Filipov	281-275-7649	afilipov@fairfield.com	D1	
Government Affairs	Arlin Howles	281-808-8629	tidenv@sbcglobal.net	D1	
	Henry Wise	281-867-9131	hmwise@yahoo.com	D1	
Guest Night	Bill Osten	281-293-3160	bill.w.osten@conocophillips.com	VP	
Historical	Open			S	
Houston Energy Council	Sandi Barber	281-552-2886	barbers@saic.com	PE	
HGS Auxiliary	Norma Jean Jones	281-497-3857	normajones@cs.com	S	
	Eddie Bishop	713-467-8706	ewbishop@bishorb.com	S	
International Explorationists	Steve Henry	281-380-1001	geolearn@aol.com	VP	
	Al Danforth, Co-Chair	713-502-2766	al.danforth@att.net	VP	
	Ian Poyntz, Tech Program	281-587-9985	poyntz@hal-pc.org	VP	
Library	Bill Anderson	713-666-3831	wm.anderson@sbcglobal.net	D2	
Membership	Andrea Reynolds	281-544-2481	andrea.reynolds@shell.com	S	
	Marsha Bourque	713-723-8490	m22799@yahoo.com	S	
Museum of Natural Science	Inda Immega	713-661-3494	immega@swbell.net	D2	
NeoGeos	Dianna Phu	713-468-1410	dphu@gemsinc.com	D4	
New Publications	Tom Fiorito	713-275-7711	tom.fiorito@anglosuisse.com	D1	
	Bill Rizer	281-392-0613	rizerwd@consolidated.net	D1	
Nominations	Steve Levine	281-293-3896	steve.d.levine@conocophillips.com	P	
North American Explorationists	Steve Earle	713-840-1980	earle50@earthlink.net	VP	
	Mike Jones	713-654-0080	mike@scoutpetroleum.com	VP	
Northsiders	Frank Wallis	713-410-9432	frank.wallis@dvn.com	VP	
	Gary Coburn	281-782-7021	gc944ts@aol.com	VP	
Office Committee	Deborah Sacrey	713-468-3260	dsacrey@auburnenergy.com	PE	
Personnel Placement	Mike Cline	713-665-5449	mikec@txresources.com	D4	
Public Relations	Valdis Budrevics	281-543-6740	valdis@budrevics.com	D3	
Publication Sales	Tom Mather	281-556-9539	geomather@aol.com	S	
Remembrances	Bill Robbins	713-206-7362	wcobbins@direcway.com	S	
Scouting	George Krapfel	713-989-7433	gkrapfel@panhandleenergy.com	D4	
Shrimp Peel	Lee Shelton	713- 595-5116	lshelton@knowledge-reservoir.com	D1	
Skeet Shoot	Tom McCarroll	832-366-1623	tom_mccarroll@yahoo.com	D1	
TechnoFest (Formerly Emerging Technologies)	Mike Allison	832-594-4079	mike.allison@dvn.com	S	
Tennis Tournament	Ross Davis	713-659-3131	rossdavis@davisbros.com	D2	
Vendor's Corner	Paul Babcock	713-890-3603	pbabcock@pecorp.com	TE	
Website	Art Berman	713-557-9076	aberman@houston.rr.com	D4	



Rugged Trail or Structural Trend?

We see both.

At TGS, we are reminded of the subsurface everywhere we look. Our world-wide database of geologic and geophysical data provides a wealth of Earth Knowledge to Oil and Gas exploration companies. But TGS is also a collection of the industry's best people, processes and technologies, all focused on guiding the search for hydrocarbons. Be it on the exploration frontier or a developed play, we offer direction, expertise and a track record of success.

Earth Knowledge.



Seismic



Well Log



Integrated Products



TGS Imaging

Have you seen us lately?

www.tgsnopec.com

TGS-NOPEC Geophysical Company

NORWAY +47 31 29 20 00 • USA +1 713 860 2100 • UK +44 (0) 1234 272122 • AUSTRALIA +61 8 9480 0000



by *Dave Rensink*

From the
President

Statistics and Other Marginally Useful Information

We in the petroleum industry tend to forget that there are other extraction industries in Texas. That was recently brought home to me when my wife mentioned that she heard on the radio that Texas is one of the biggest producers of lignite coal in the United States. My immediate retort was, "that can't be right." After all, when was the last time you saw a coal mine in Texas? If I had asked you to bet on how much coal Texas produced, you would have won if you picked any number over zero. The fact is that Texas is THE LARGEST producer of lignite coal in the United States. Texas is also the fifth largest coal producer overall behind Wyoming, West Virginia, Kentucky and Pennsylvania. Most of it comes from 3- to 10-foot seams in the Wilcox Group in east and southeast Texas. It is probably no surprise that approximately 98% of the lignite is used to generate electricity in Texas. We also have the distinction of being the largest consumer of coal in the United States, nearly all of which is used for electric power generation.

Did you know Texas generates approximately 10% of the total US electric power? In fact, Texas is the biggest electricity generator of the fifty states. We produce nearly 70% more electricity than Florida and twice as much as Pennsylvania and California. We are also the largest consumer of electric power, followed by California and Florida. Texas may be a net exporter of electricity, but in 2003, we consumed nearly as much as we produced. We are the second most populous state behind California and ahead of New York and Florida. Texas has 7.6% of the US population, yet we consume almost 10% of the electricity. We are the largest consumer of electricity in all three categories-residential, commercial and industrial. It may be possible to point to economic reasons for our disproportionate consumption of electricity, but I would bet the real culprit is the environment. Air conditioning is virtually essential to our well-being and the quality of life in Texas, but it comes at a cost.

In the vein of other lesser known facts about Texas minerals (at least known by me), the following is from the Bureau of Economic Geology. Based upon USGS estimates of the quantities of minerals produced in the fifty states in 2003, Texas continued to be first in

crushed stone and second in portland cement, construction sand and gravel, salt, common clays, gypsum, talc and zeolites.

HGS is an affiliated society of AAPG, but that does not mean we cannot serve the minerals side of the business. We have already established special interest groups in international and North American exploration, environmental and engineering geology, and neogeos. If there is sufficient interest, there is every reason that a minerals exploration group could also be established. All we need are interested participants and volunteers to organize the meetings. If we have a minerals constituency that believes it is not being served with the current organizational structure of HGS, let me know. I am confident the board would support the organizational efforts of any group that feels it has been marginalized. In the words of a former Louisiana politician, "Le me hep ya."

*Texas generates
approximately 10%
of the total
US electric power?*

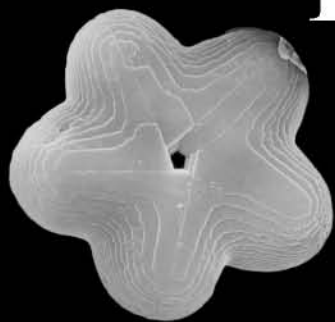
As long as we are dealing with statistics, here are some that I did know and that ought to concern us all. The country with 4.6% of the world's population consumes 24.7% of world's oil production and 23.4% of its natural gas production.

That same country only produces 42% of its crude oil requirements. That means we import 12 million barrels of oil every day. Fortunately, we do produce 85% of the natural gas we consume. The balance of our natural gas needs is imported from Canada. At current product prices, we are exporting approximately 790 million dollars per day (\$660 million for oil and \$130 million for natural gas). That is about a third of our total trade deficit.

If you are sitting on a pile of US dollars and you do not live in the United States, there is not much you can do with them besides buy US goods, services, companies and real estate or US treasury securities. It probably is no surprise to anyone that in September 2005, \$2.066 trillion of US debt was in foreign hands (that is 26% of the total US debt), but it may surprise you to know where most of it was located. Japan held 33.3%, mainland China held 12.2%, the UK held 8.8%, and Caribbean banking centers held 5%. Surprisingly, OPEC is down the list at 2.6%.

From the President continued on page 7

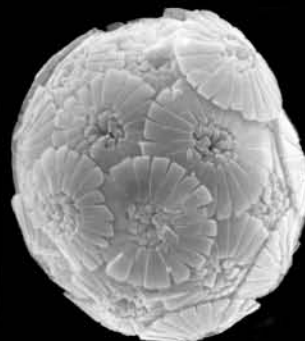
BugWare, Inc.



Full Service Oilfield Paleontology

In the Office

We can do sections from *anywhere in the world, any age*. Our staff of experts, including two PhDs, boast a combined 75 years of experience. We can prepare raw samples and examine them for nannofossils and/or forams in our offices. Call us and ask about our sample rates for different levels of detail ranging from research grade (includes digital photographs) to quickscan age determinations.



Software

We wrote the book on paleo software... literally. We have provided our software to paleontologists in industry and academics all over the world for over 15 years. We can import paleo data from virtually all known programs, existing or extinct.

Our software can plot paleo charts fully integrated with all types of borehole properties such as logs, graphical lithology, synthetic seismic, and more.

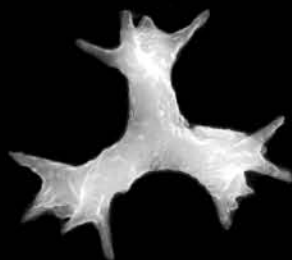
Wellsite Service

Our Specialty! From the shakers to the microscope in minutes, we can have a geological age for you using nannofossils or forams. Paleo is a major factor in multimillion dollar decisions made at wellsite, and we have provided years of wellsite service to just about every major oil company.

If our software doesn't do what you need it to, chances are good that we can make it work. Users of our software include paleontologists and coordinators at most major oil companies as well as consultants and academia worldwide.

Data Management

Drawing from 20 years of paleo data management and formatting experience, we can convert, standardize and manage your existing paleo data so that you can get the most out of it.



(850) 668-3894 www.bugware.com

mitch.covington@bugware.com

Mitch Covington - Nannos (Mesozoic & Cenozoic)
Jim Pospichal, PhD - Nannos (Mesozoic & Cenozoic)
Anatoliy Shumnyk, PhD - Nannos (Mesozoic & Cenozoic)

Dana Griffith - Forams (Neogene)
Steve Root - Nannos (Cenozoic & Mesozoic)
James Arney - Nannos (Cenozoic)

The Caribbean banking centers held \$103 billion of US debt instruments in September 2005. During the first nine months of 2005, their holdings (whoever "they" are) have ranged from \$94 to \$125 billion. Also during the first nine months of the year, the total debt held by foreign entities has risen by \$156 billion. Beyond the fact that these are mildly interesting statistics, what is the point? A macro-economist would probably say that we are part of a global economy and there is no point. I take the view

that money seems to be one of our biggest exports, and in the not too distant future, the United States will no longer be owned by Americans. That thought scares me more than the potential worst-case consequences of global climate change.

Do not forget to check the February and March meeting schedule on the HGS Website. ■

Member News and Announcements

2006 HGS Grand Canyon Geology Field Trip

Vacancies exist for the JUNE 16-24, 2006 **HGS Grand Canyon Geology Field Trip**. Contact Dave Lazor at jdlazoroilngas@aol.com for more information.

2006 SIPES Houston Chapter New Officers

Chairman	Larry Rairden
Chairman-Elect	Pat Shannon
Secretary	Scott Sechrist
Treasurer	Mark Gregg
Past Chairman	Pat McKinney

Correction Paul Hoffman's phone and email have been corrected on the phone list, page 3. Paul is the AAPG Delegate Foreman. He works at Cox & Perkins Exploration.

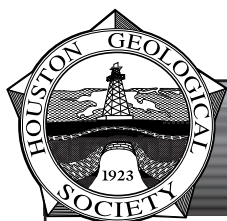
HGS Foundation Awards

The HGS Foundation has awarded six undergraduate scholarship awards this year to the following student. A write-up and pictures will appear in next month's *Bulletin*.

University	Student
Rice University	Adam Halpert
Stephen F. Austin	Bobbie Rappe
Sam Houston	Clayton Coble
Texas A&M	R. Shane McGary
Univ. of Texas	John Kolvoord
Lamar University	Tony Courville

Opera Night

Marsha Bourque and Jim Ragsdale have organized *Opera Night* for HGS members, see page 11.



HGS Welcomes New Members

Effective December 1, 2005

ACTIVE	Charles Henry, III	Tandis Bidgoli	ASSOCIATE
David Donica	Jim Szpakows	William Conroy, Jr	Clyde Rayborn
Walter Sapp, III	Seth Frankhauser	Allison Johanson	Janet Epresi
Brian Stambaugh	Thomas Bergeon	Jeff Lonnee	
Ingo Steinhoff	Kimberly Hall	Grethchgn Shub	STUDENT
Becky Morlier	Bradley Eales		Kenneth Elsbury
Steve Western	Dana Griffith		

Effective January 1, 2006

ACTIVE	Mark Weldon	Tiffany Hulett	STUDENT
Frederick Zimmerman	C. William Claxton	Michael Treesh	Alana Robinson
Mary Bentley	Kevin Gallatin		
Peter Price	Chris Yarbrough		

Welcome New Members



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.**

Random Inside (BLACK & WHITE)					Page 2 (B&W)	Inside Front Cover (Full Color)	Inside Back Cover (Full Color)	Outside Back Cover (Full Color)	Calendar Page (Full Color)
No. of Issues	Eighth	Quarter	Half	Full	Full	Full	Full	Half	Quarter
10	\$762	\$1284	\$2304	\$4383	\$5260	\$7250	\$7000	\$6350	\$2500
9	\$762	\$1284	\$2304	\$4383	\$5260				
8	\$694	\$1168	\$2076	\$3988	\$4786				
7	\$616	\$1040	\$1865	\$3550	\$4260				
6	\$546	\$918	\$1650	\$3141	\$3768				\$1750
5	\$460	\$775	\$1392	\$2648	\$3178	\$4350	\$4200	\$3800	
4	\$375	\$632	\$1132	\$2154	\$2585				
3	\$303	\$510	\$918	\$1746	\$2094				\$1000
2	\$215	\$363	\$652	\$1240	\$1488				
1	\$135	\$228	\$410	\$780	\$936	\$1300	\$1200	\$1000	\$750
Business Card \$125 per 10 Issues – Send two cards (\$25 for each additional name on same card)					Full Page on Back of Calendar Page (FULL COLOR) \$6250 - 10 issues		TWO-COLOR AD (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.

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

	Home Page		Website Business	Web and Bulletin	Newsletter Sponsor	Personal Resumes	GeoJobBank
	Logo 165x55	Banner 460x55	Card (with link)	Business Card	Banner Ad (with link)	(Members only)	Posting
One year	\$750.00		\$60.00	\$150.00	\$2,000.00	Free	
6 months	\$385.00		NA	See note below•	\$1,150.00	Free	
3 months	\$200.00		NA		\$600.00	Free	
1 month	NA	\$250.00	NA		\$250.00	Free	\$50.00



by Paul Britt
editor@hgs.org

Not Your Father's AVO

TOP TEN REASONS YOU MIGHT BE A GEOLOGIST: *

5. In an art museum, you spend more time looking at the walls than the paintings.
next month, reason no. 4...

Tsunamis, hurricanes, and now volcanoes are in the news as potential geo-hazards. AVO to our readers usually means amplitude variation with offset. But in this case it is the Alaska Volcano Observatory (AVO), a joint program of the United States Geological Survey (USGS), the Geophysical Institute of the University of Alaska Fairbanks (UAFGI) and the State of Alaska Division of Geological and Geophysical Surveys (ADGGS). AVO, formed in 1988, uses federal, state and university resources to monitor and study Alaska's hazardous volcanoes, to predict and record eruptive activity, and to mitigate volcanic hazards to life and property. Mt. Augustine in Cook Inlet, Alaska (Figure 1), poses the potential of eruption and possible tsunami, based on increasing seismic activity around the mountain (Figure 2).

*The Volcano has
the capacity
to pose a threat to
oil and gas operations
in Alaska*

“(Mt.) Augustine Volcano is a 1250-meter-high stratovolcano in southwestern Cook Inlet about 280 km southwest of Anchorage and within about 300 km of more than half of the population of Alaska. Explosive eruptions have occurred six times since the early 1800s (1812, 1883, 1935, 1964-65, 1976, and 1986). The 1976 and 1986 eruptions began with an initial series of vent-clearing explosions and high vertical plumes of volcanic ash followed by pyroclastic flows, surges, and lahars on the volcano flanks. Unlike some prehistoric eruptions, a summit edifice collapse and debris avalanche did not occur in 1812, 1935, 1964-65, 1976, or 1986. However, early in the 1883 eruption, a portion of the volcano summit broke loose forming a debris avalanche that flowed to the sea. The avalanche initiated a small tsunami reported on the Kenai Peninsula at English Bay, 90 km east of the volcano. Plumes of volcanic ash are a major hazard to jet aircraft using Anchorage International and other local airports. Ashfall from future eruptions could disrupt oil and gas operations and shipping activities in Cook Inlet. Eruptions similar to the historical and prehistoric eruptions are likely in Augustine's future.”¹

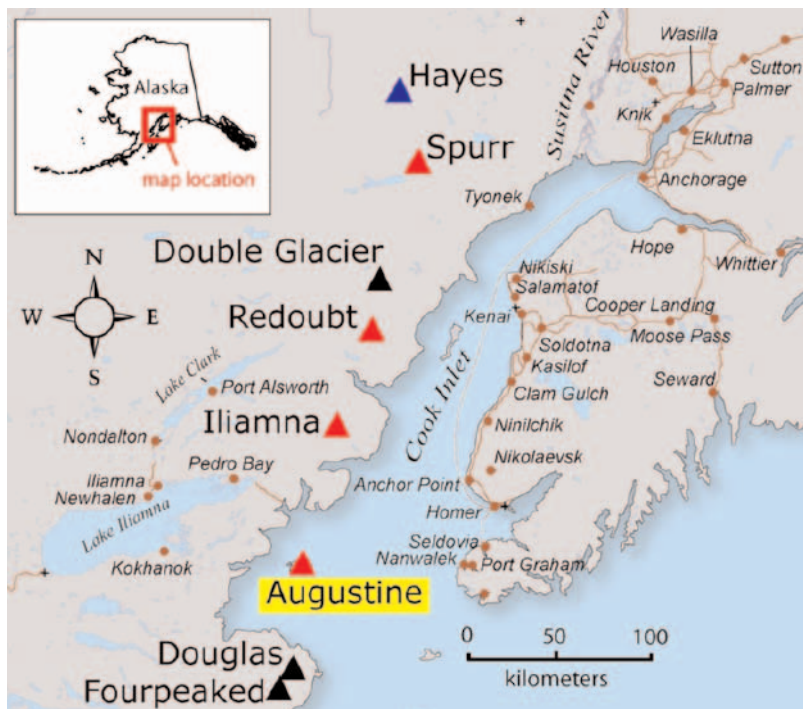


Figure 1. Cook Inlet and location of the Augustine Volcano (courtesy of AVO and USGS)

Mt. Augustine is one of the many volcanoes on the USGS 'watch list.' Like the Gulf Coast hurricanes late last year, it has the capacity to pose a threat to oil and gas operations in Alaska, as well as potential harm to human activities and wildlife. Like a hurricane, an eruption cannot be prevented through human intervention, and the only response possible is advance warning and preparation. The AVO maintains a website on volcanoes, at www.avo.alaska.edu, that includes detailed seismic activity, and also a webcam of Mt. Augustine Volcano based in Homer, Alaska, which updates every 5 minutes. The backbone of AVO's volcano monitoring program consists of networks of continuously recording seismometers installed at selected volcanoes. Seismic data are relayed to AVO facilities in Fairbanks and Anchorage where they are analyzed both automatically and by analysts. Alaska has 129 major volcanic areas, 44 of which are historically active, and 45 that were active in the Holocene.

From the Editor continued on page 11

Our focus is Client Satisfaction!



And our ISO 9001:2000 Quality Management System Proves It!

As the recognized leader in core analysis and formation characterization, Core Lab's Houston Advanced Technology Center is pleased to announce that our Quality Management System has been *ISO 9001:2000* certified. Our laboratory provides state of the art measurements with unmatched quality control and equipment calibration standards.

At Core Lab every job concludes with a customer feedback survey. We are constantly working to enhance customer satisfaction and continue to improve our performance.



**No one has more customer focused core
and reservoir fluid based solutions for
optimizing your reservoir.**

**Tell us how we performed on your most recent
project by contacting Core Lab at (713) 328-
2121 or psinfo@corelab.com**

© 2005 Core Laboratories. All rights reserved.

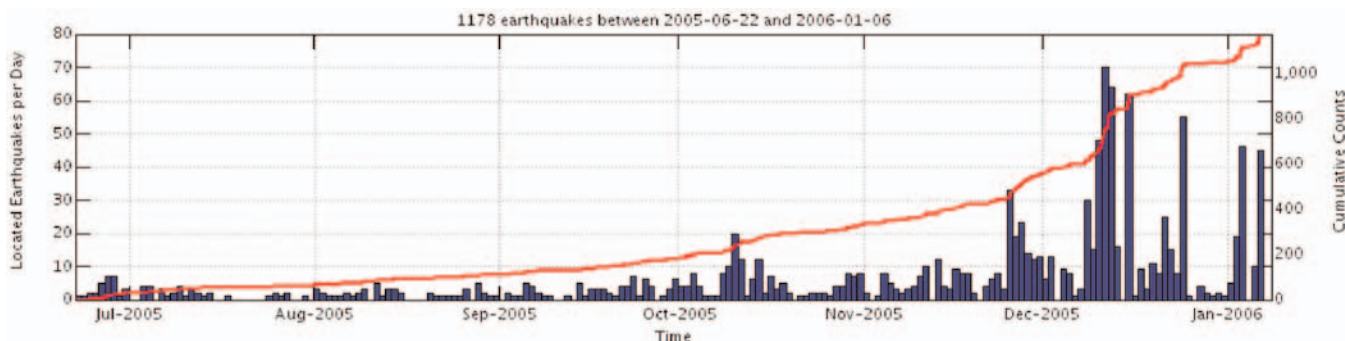


Figure 2. Earthquake counts at Augustine Volcano (courtesy of AVO and USGS)

The West Coast/Alaska Tsunami Warning Center (WC/ATWC) in coordination with the USGS is watching the current activity at Mt. Augustine closely, because it has the potential for generating a tsunami that could threaten the US coastal populations. A tsunami resulting from an eruption of Mt. Augustine could cause dangerous flooding of low-lying coastal areas surrounding the Lower Cook Inlet between the Barren Islands to the south and Kalgin Island to the north. The shallow depths of the upper region of Cook Inlet would cause the tsunami to diminish considerably, making the risk to Anchorage extremely low.

“Large flank collapses have been observed on other volcanoes in modern times: Bezymianny 1956, Sheveluch 1964, and Mt. St. Helens 1980. The seismic energy release from each was approximately equivalent to a magnitude 5 earthquake. These events are our best indication of what may be observed on seismic networks due to a potentially tsunamigenic flank collapse at Mt. Augustine. During the last two Mt. Augustine eruptions, the largest recorded seismic energy release associated with the eruption was equivalent to a magnitude 3.2 earthquake.”² So, if magnitude 5 equivalent seismic activity is recorded at Mt. Augustine, a tsunami generating flank-collapse could occur.

The Mt. Augustine Volcano is just one example of potential geo-threats that can be found around the world. Fortunately, in at least some areas, resources are devoted to the study and observation of these threats, an example of geology being used to protect the public welfare and safety. ■

Footnotes

¹ From the Alaska Volcano Observatory Website

² From the National Oceanic and Atmospheric Administration - National Weather Service Website.

EDITOR’S NOTE: As the *Bulletin* was going to press, the AVO reported two eruptions of Mt. Augustine Volcano in the early morning hours of January 11, and again on January 13. Ash clouds were reported to 30,000 ft and 34,000 ft, respectively. The ash cloud from the January 13 eruption is expected to impact the shoreline of Kamishak Bay and could impact Kodiak Island as well. No tsunami threat was issued. The “Level of Concern Code” remains at red. More details are available at www.avo.alaska.edu

Entertainment ? HGS at HGO!

Take a break from the ordinary. Enjoy the opera world’s most beloved and recognized music at the Houston Grand Opera.

The story of the sensuous gypsy, CARMEN, will be presented at the Wortham Theater from April 15 through May 6.

Help us choose the date, and we will take care of the rest. A backstage tour, a chance to meet the artists — an exceptional experience awaits.

Contact Jim Ragsdale at JAR1642@aol.com or Marsha Bourque at mbourque@houston.rr.com for details.



NEW Short Course!!

Geochemical Exploration for Oil and Gas: Strategies for Doubling Exploration Success while Halving Its Cost

Date: May 11-12, 2006

Location: Houston, Texas

Tuition: \$700, AAPG members; \$800, non-members (increases to \$800/900 after 4/13/06), includes course notes and refreshments

Content: 1.5 CEU

Instructors: Dietmar Schumacher, Geo-Microbial Technologies, Inc., Mora, NM, and Leonard LeSchack, Topaz Energy Exploration Ltd., Calgary, AB, Canada

Who Should Attend

CEOs, VPs of exploration, exploration managers, investors and drilling fund managers and, of course, exploration and development geoscientists. This course is essential for anyone who needs to cost-effectively develop, evaluate, or fund prospects, or high-grade otherwise unexplored acreage. It will also be of interest to senior government officers concerned with enhancing domestic energy production and related environmental issues.

MAYbe you need a MAY course with AAPG!!

Field Seminars

Equatorial Carbonate Systems - Modern and Miocene Analogs for Carbonate Plays in SE Asia

Leaders: Paul Crevello, Petrex Asia Reservoir & Stratigraphy Group, Kuala Lumpur, Malaysia; Robert K. Park, Kodeco Energy Co. Ltd., Jakarta, Indonesia

Dates: May 14-20, 2006

Location: The trip will begin and end in Jakarta, Indonesia. Participants should plan to arrive for an evening welcoming reception at 16.00 on May 13 and plan their departure for the evening of May 20.

Tuition: \$2,850 USD (increases to \$2,950 after 4/02/06), includes travel to/from the island resort of Pulau Putri, all meals on Pulau Putri, field refreshments, ground transportation to/from Bandung and night of May 13 hotel in Jakarta and 3 nights hotels in Bandung

Limit: 20

Content: 4.2 CEU

Who Should Attend

Exploration and Development geologists, geophysicists, reservoir and production engineers, log analysts and exploration and development managers who want a thorough working knowledge of productive carbonate reservoir systems.

Ancient Clastics: Book Cliffs and Canyonlands, Utah (formerly Foreland Basin Clastic Reservoirs, Book Cliffs, Utah)

Leader: John K. Balsley, Consulting Geologist, Indian Hills, CO

Dates: May 15-23, 2006

Location: Begins and ends in Moab, Utah

Tuition: \$2,100 (increases to \$2,200 after 4/17/06), includes 4-wheel-drive transportation and course notes on CD

Limit: 15

Content: 6.0 CEU

Who Should Attend

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

Complex Carbonates Reservoirs: The Relationship between Facies and Fracturing

Leaders: Raffaele Di Cuia, G.E. Plan Consulting, Ferrara, Italy

Dates: May 20-26, 2006

Location: begins in Naples and ends in Pescara, Italy

Tuition: \$2,650 USD (increases to \$2750 after 4/07/06), includes guidebooks, transportation expenses during the field seminar and all meals during the course.

Limit: 15

Content: 4.2 CEU

Who Should Attend

Petroleum/exploration geologists and geophysicists who are involved in the interpretation of carbonate sequences/reservoirs in sub-thrust and thrust belts settings; reservoir geologists and engineers that deal with the 3D characterization and distribution, at reservoir scale, of carbonate facies and fracture/faults.



Controls On Porosity Types and Distribution in Carbonate Reservoirs

Leaders: Evan K. Franseen, Kansas Geological Survey, Lawrence, KS; Robert H. Goldstein, University of Kansas, Lawrence, KS; Mateu Esteban, Carbonates International, Mallorca, Spain

Dates: May 28-June 2, 2006

Location: Almería Region, SE Spain, begins and ends in Las Negras, Spain. Fly from London/Barcelona/Madrid

Tuition: \$2,500 USD, dependent on exchange rate (increases to \$2600 after 4/14/06), includes field transportation, all meals and lodging during trip, guidebook

Limit: 15

Content: 4.8 CEU

Who Should Attend

Petroleum geologists, engineers, and geophysicists who are involved in interpreting carbonate sequences.



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

AAPG Convention Set for April 9-12

By AAPG Convention Organizing Committee

Of the 11 times that Houston has hosted the AAPG Convention (since 1924), only two conventions were held at times of historically high oil and gas prices. The last time a convention was held in Houston during an oil boom was in 1979, 27 years and a generation ago! The 2006 AAPG Convention in Houston will be another landmark “oil boom” convention. Since 1979, Houston has grown substantially in people and technology making Houston today a thriving energy capital, a crossroads of technology and a gateway of “know-how” to the world.

Back in 1979, high prices followed the peak output of U.S. domestic oil production. In 2006, our industry is facing the possibility that at this time in history we could be at the peak of global oil production. AAPG is planning a forum entitled “Winning the Oil End Game-The Future of Hydrocarbon Resources in Our Global Economy” at the April 2006 convention to debate the issue. However controversial these issues may be, one thing is certain: geologists have always been at the center of energy exploration, from the early wildcatters to space exploration. AAPG is pleased to announce that Apollo 17 astronaut Jack Schmitt, the only AAPG member to have walked on the moon, will share his ideas about future exploration and energy at a special forum.

The AAPG today is made up of an ever-expanding global association of petroleum professionals. This is reflected in the convention logo, representing a diverse group of talented geoscientists of various backgrounds, having multiple skill sets, and coming from many geographic locations. We are pleased that our logo also reflects the latest technologies that these teams employ. (Of particular note is the innovative forum “Women as Leaders in the E&P Industry”).

Conventions are all about people and ideas. Ideas drive this year’s AAPG program. The theme of the meeting, “Perfecting the Search” (a quote from the late Michel T. Halbouty) reflects efforts to improve our abilities to find and produce hydrocarbons commercially as we strive to become better scientists and explorers. The strength of the technical program is our foundation. Technical achievement paves the way to profitable business so geologists can “Deliver on our Promises.” Mindful that exploration is a business, we have taken steps to ensure that business relevance is integral to this program. Sessions such as “Energizing the World in the 21st Century” will occur all day during the



Monday program. CEOs of oil companies will share their visions of the future. Other business-relevant sessions include “Overcoming Challenges for E&P in the 21st Century,” “Reserves Now and in the Future” and “Show Me the Money! How Wall Street Logic, NYMEX Traders and Capital Markets Impact You.”

For additional information, see below and also the AAPG web page: <http://www.aapg.org/>.

Registration discounts apply prior to February 17. In addition, you can be a part of the convention by volunteering, judging or sponsoring. Contact Jim Grubb, Volunteer Chairman (713-591-1155), George Klein, Judging Chairman (281-937-9436) or Gonz Enciso, Sponsorship Chairman (713-422-8261).

Technical Program

The technical program builds on the convention theme “Perfecting the Search, Delivering on Promises,” beginning with oral and poster sessions on discoveries, case studies and techniques with an additional focus on the business of our profession. This year we have over 875 papers consisting of 432 posters and 446 oral papers.

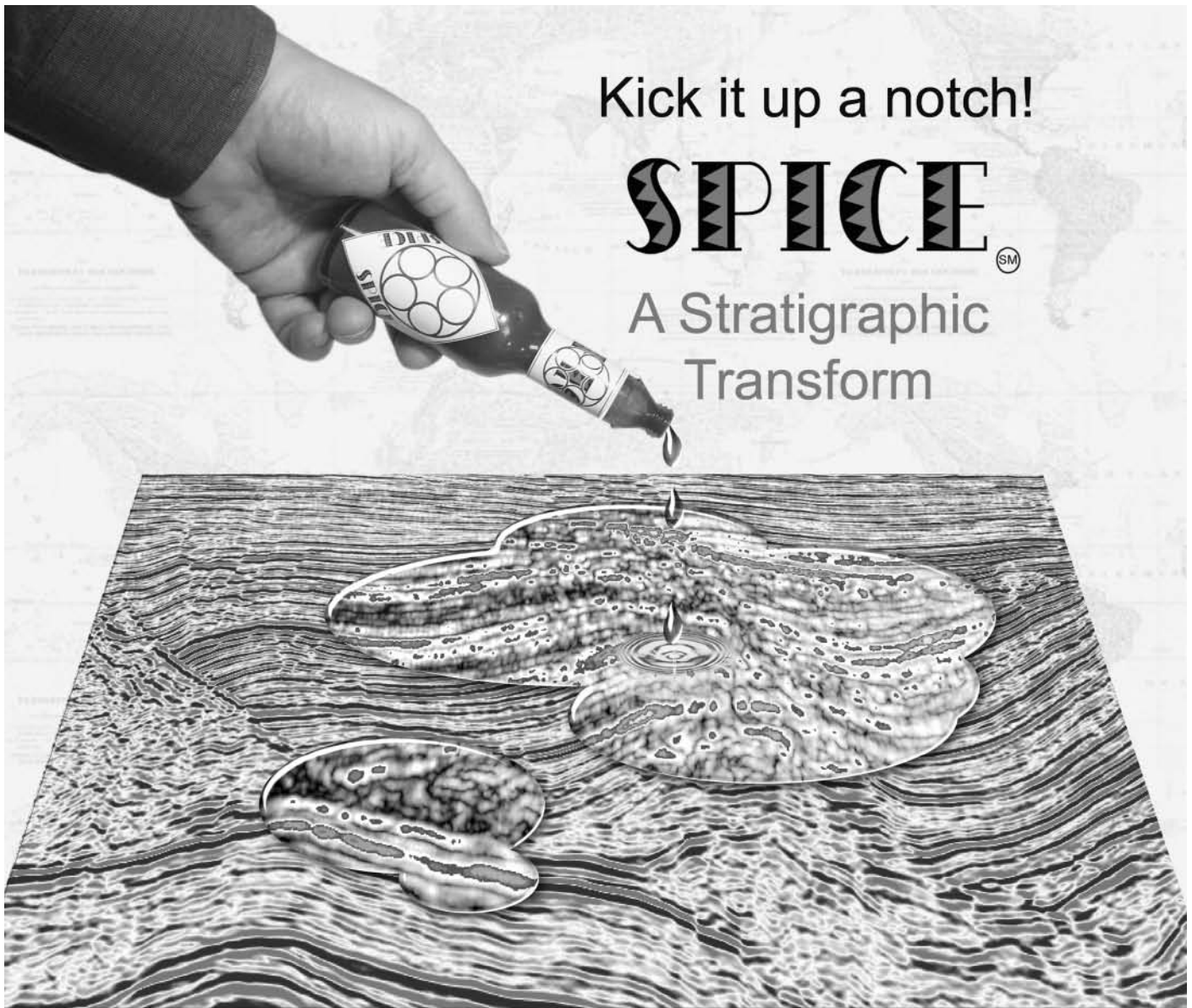
Program themes are:

- Successful Business Strategies with the landmark forum “Energizing the World in the 21st Century” beginning the technical program.
- Delivering Resources and Environmental Quality for a Sustainable Future
- Learning from Exploration and Exploitation Successes, Failures and Mistakes, with the opportunity to study Bypassed Pays and Plays
- Giant Fields of the World, Their Implications and What They Have to Teach Us which includes the Giant Fields Core Workshop and Giant Fields Core Poster Session
- Play Openers and Where They Are Leading Us
- Perfecting the Search for



Astronaut Jack Schmitt collecting lunar samples (12 December 1972).

AAPG Convention continued on page 15



Kick it up a notch!

SPICE SM

A Stratigraphic
Transform

EXCLUSIVELY AVAILABLE FROM FAIRFIELD INDUSTRIES

SPICE = SPECTral Imaging of Correlative Events SM

Get more stratigraphic detail
from your seismic data!

A process which shows:

- Structure
- Stratigraphy
- Bed-form Boundaries

 **FAIRFIELD**
INDUSTRIES

What can SPICE do for you? Contact us for a full technical briefing.

Houston Denver www.fairfield.com (800) 231-9809 (281) 275-7500 dataprocessing@fairfield.com

Unconventional Plays and Technology, which in addition to discussing various unconventional reservoir types includes the Halbouty Lecture by Harrison Schmitt "Wildcatting on the Moon"

- Integrating Geology, Geophysics and Engineering to Deliver Success
- Reservoir Characterization and Modeling, focused on geological and geophysical input to reservoir analysis and ultimately fluid movement
- Stratigraphy and Petroleum Systems
- Structure and Tectonics

Forums

Contributions of the Gulf Coast to geoscience technology

This year's History of Petroleum Geology forum will focus on how the Gulf Coast has served as the cradle for and fostered developments in micropaleontology and industrial biostratigraphy, geophysical techniques, salt tectonics, offshore technology and other disciplines.

Energizing the world in the 21st century

This full-day executive business session will bring together the leaders of prominent oil and gas companies to discuss how the E&P industry will meet increasing hydrocarbon demand in the years to come. This inherently growth-oriented story will be addressed from each company's unique perspective.

Overcoming challenges for E&P in the 21st century

Growing energy demand in the world is the key driver for challenges faced by our industry today. These range from global recruiting, and the training, development and retention of highly skilled and talented employees to innovative and responsible ways to develop the world's resources through advanced technology for the growing energy demand in the 21st century. Participants in this management forum will be asked to address different aspects of the challenges.

Show me the money — How Wall Street logic, NYMEX traders and capital markets impact you

This business forum will give you the opportunity to hear a panel of experts provide insight into a number of intriguing yet fundamental aspects of the industry, such as the motivating factors at work in the fast-paced world of commodities trading and what constitutes the trigger points that dictate price swings for oil and gas company equities. Other presentations on tap for this event include a look at where some of the current deep-pockets money sources want to invest their capital these days and what this means for you.

Reserves: Now and in the future

Industry experts from Wall Street, government, academia, con-

sulting and private industry will provide their views on the subject of current and future reserves. The forum will allow for short presentations by each industry expert, followed by an open question and discussion session from you.

Winning the oil end game: The future of hydrocarbon resources in our global economy

Forum panel members will discuss the role of exploration for both conventional and unconventional resources, giant fields, and field rehabilitation and development technologies in meeting the growing demand for hydrocarbons. Addressing the economic risks and possible mitigating solutions, panel members will also consider the commercial and economic implications of peak oil from various perspectives, including that of an E&P company, a financial institution and a consumer of energy products.



The significance of mass transport deposits in deepwater environments

MTDs are defined as deepwater features or stratigraphic intervals that have been mobilized and redeposited since their time of original deposition. MTDs include what are variously termed slumps, slides, mass flows, debris flows, slope failure complexes, mass transport complexes and numerous other terms. The symposium involves technical discussions on classification, geomorphology, depositional environment, geotechnical properties, petrophysical properties, geophysical properties and pressure regimes.

High-resolution sequence stratigraphy: Is the model breaking apart?

Vitor Abreu (SEPM Research Councilor) will moderate this forum, and seven invited guests from industry and academia will lead the discussion with different approaches and points of view about the subject. This format will allow different opinions to be expressed and defended on a scientific basis, which we hope may shed a light on this controversial subject. The objective is to have

AAPG Convention continued on page 17



RPS Cambrian

$$\begin{array}{l} \text{Cambrian} \\ \text{Consultants} \end{array} \quad \text{Hydrosearch} \quad \text{RPS} \quad \text{Energy}$$
$$CE + \frac{(TT + H)}{\text{TimeTrax}} = RPS$$

Solutions for your resourcing needs

RPS Energy, incorporating RPS Cambrian, RPS Hydrosearch and RPS TimeTrax, offers a wide range of added value solutions to the world-wide oil and gas industry.

Our expertise and experience, gained over 25 years, provides us with a solid foundation to partner with clients in support of their upstream activities.

For further details call **(281) 877 9400** or visit us at **www.rpsplc.com**

RPS Cambrian

an open debate about the controversies associated with sequence stratigraphic interpretations in high-resolution data sets.

Short Courses

This year's Short Course Program is presented in three theme areas: *Foundations*, *Technical Enrichment* and *Energy Business*.

In the *Technical Enrichment* arena we are delighted to present three core workshops: Giant Hydrocarbon Reservoirs of the World, Applied Ichnology and Core Analysis of Sorbed Gas Reservoirs. The last two will be held at the Texas Bureau of Economic Geology Core Facility in northwest Houston. Also, don't miss "By-passed Pays and Plays," which will present many case history examples. These are terrific, one-of-a-kind opportunities, so be sure to register early. We are also pleased to present three sponsored *Foundations* courses: Sequence Stratigraphy Basics, 3-D Interpretation for Geologists and Introduction to Mudlogging. In the *Energy Business* area, we are presenting "Packaging and Selling your Prospects" and "Creative Petroleum Exploration," which will open your mind to new ways of looking at your prospects. "Ethics for Geoscientists" is presented as a lunch program on Saturday, April 8, so bring your box lunch to the ethics lecture, then return to finish your short course in the afternoon. If you are anticipating taking a state professional registration exam you will also want to attend the "Professional Geology Exam Preparation Overview" Saturday afternoon.

Field Trips

The Houston Embayment offers a wealth of opportunities for one-day field trips to view modern depositional environments, coastal plain lignite deposits, active growth faults, coastal erosion, salt domes and historic sites of geological interest. The 2006 AAPG Annual Convention will take advantage of these nearby localities and mix them with trips of several days duration within reasonable flying time from Houston. A total of 13 pre- and post-convention field trips are being offered. The majority of the trips are sponsored by the Houston Geological Society (HGS) and SEPM (Society for Sedimentary Geology). In addition, the AAPG Student Chapter and SEPM are offering a student trip at significant discount and the AAPG Energy Minerals Division is offering a coal trip, "East Texas Lignites."

Special Events

All-Convention Luncheon: *Tim Cejka, President, ExxonMobil Exploration Co.*—"Expanding the Search" will address the significant challenges facing our industry as we strive to keep the world supplied with affordable sources of energy. Skillful application of

technology will be critical to meet this challenge, and it will come not only in the form of new hardware and software but also in the way we are organized, operate, learn and interact. These advances will allow us to produce oil and gas in ever-more remote areas and deeper waters and make currently nonconventional resources part of our standard portfolio



DEG Luncheon: *Amory B. Lovins, CEO Rocky Mountain Institute*—"Winning the Oil Endgame" discusses a strategy to optimize oil use by the United States. This plan would more efficiently utilize our natural resources and is public policy-driven without additional taxes.

DPA Luncheon: *Leslie Haines, Editor and Chief, Oil and Gas Investor*—"Perfecting the Search for Drilling Capital" will address the availability of money to finance drilling ventures. Ms. Haines notes that there is more public and private capital available for drilling now than at any time in the past 20 years. She will explore who the main providers are of capital and what they expect from an exploration and production company and will detail some of the ways E&P companies have successfully accessed this capital and on what terms.

EMD Luncheon: *Peter Dea, President and CEO Western Gas Resources*—"Perfecting the Search for Unconventional Resource Plays" will discuss the multidisciplinary aspects that he and his peers have focused on to unlock the riches in unconventional gas in the last decade. The results show dramatic success in unconventional gas resources leading the growth of U.S. gas supply, reserve additions, technology advancements, environmental mitigation and driving major pipeline projects.

SEPM Business Meeting/Luncheon: *Dr. Gary Parker*—"Deepwater Turbidity Current Dynamics: Inception, Erosion and Deposition" looks at the latest ideas concerning the processes active in transporting and depositing some of the most prolific oil and gas reservoirs being explored for today.

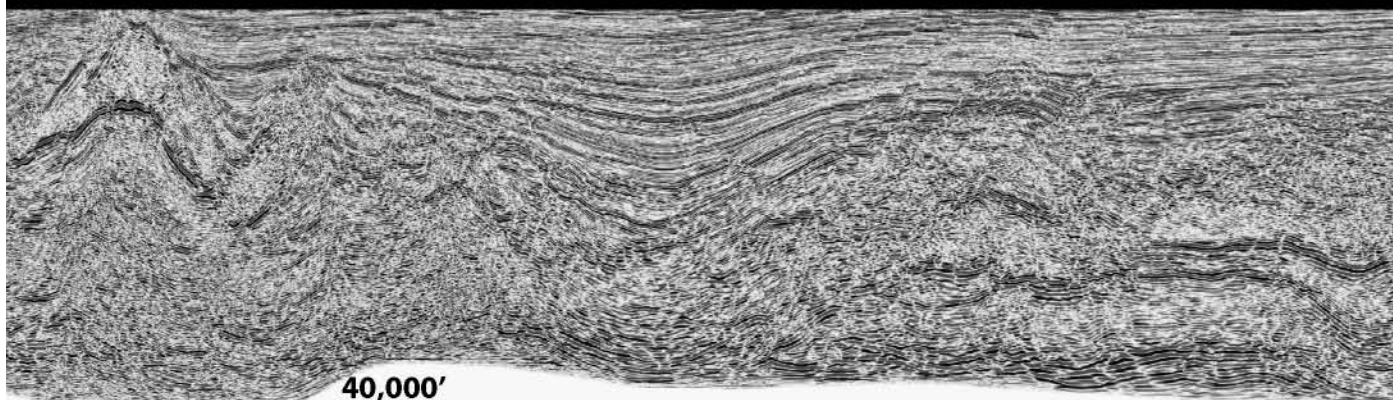
DPA Panel and Special Forum: "Women as Leaders in the E&P Industry" panel will examine the challenges faced by women in their rise to pioneering leadership positions and the opportunities they foresee as women fill operating and executive leadership roles with increasing frequency at E&P organizations ranging from multinational majors, large independents and national oil companies, to small entrepreneurial firms.

AAPG-AWG Special Forum: "Women in the Petroleum Industry: Developing Future Female Leaders Today" complements the forum "Women as Leaders in the E&P Industry" and focuses on developing leadership skills for women professionals within the petroleum industry.

AAPG Convention continued on page 19

Put your exploration plan into action
with the most advanced data available:

New PSDM!



NOW available

800 OCS blocks

of multi-client ***prestack depth migrated*** data show significantly better imaging of deep prospects and structurally complex areas.

- Data imaged to 40,000'
- Full fold depth migrated gathers (60-90 fold) using AVO friendly processing
- Full offset stacks and corridor stacks available
- Velocity modeling using Fairfield's advanced Tomographic Depth MVA

Visit www.fairfield.com for the newest spec data and processing.



FAIRFIELD
INDUSTRIES

Houston 281/275-7500
New Orleans 504/525-6400

Proud to be
an American
company

**You don't need to search
for the savings when it's
right in front of you.**



**Register for the
2006 AAPG Annual Convention
in Houston by February 17
and save money!**

www.aapg.org/houston



**April 9-12 • Houston, TX
1 888 945 2274 ext. 617 or 1 918 560 2617
convene@AAPG.org**

AAPG Convention continued from page 17



Social and Guest Activities

Enjoy an evening at Landry's Downtown Aquarium, an underwater dining adventure sponsored by the Houston Geological Society. Experience a great meal, drinks, exciting midway rides, the beauty of the underwater world, and the Houston skyline all in one convenient location. The Aquarium features open-air verandas to enjoy the evening, sumptuous food, tigers, sharks, aquatic creatures of the Gulf Coast, and the reef community of an offshore platform to name a few of the features.

There is no better time of the year in Houston than springtime! The weather is pleasant and the blue bonnets should be at the peak of blossoming! For the entertainment of our guests we have included tours of the Offshore Energy Center Ocean Star Museum and the Haak Vineyards and Winery, a trip to Brenham for shopping and ice cream, and visits to the UpTown Day Spa and to Minute Maid Park. ■

GEOSCIENCE JOBS & PERSONNEL AVAILABLE!

Job Seekers:

During the past year, the HGS Jobs Hotline website has averaged over 30 positions per month. New ads are being posted almost every day!

Employers:

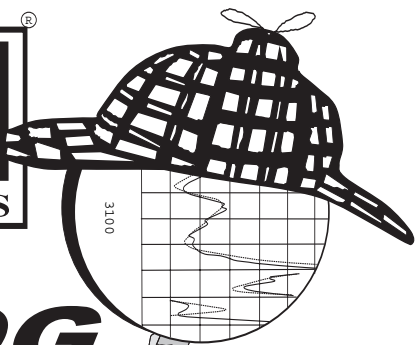
Get free listings, and a large response from qualified candidates, for your ads. Our website averages nearly 11,000 website "hits" per month.

Current Jobs page at:

<http://www.hgs.org/en/jobs/search.asp>

Contact info:

Mike Cline at T/X Resources – Chairman, HGS Personnel Placement Committee • (713) 665-5449
mikec@txresources.com



LOG Sleuth 2000

**AND RASTER IMAGE
WELL LOGS**

**OVER
5 MILLION
LOGS
AVAILABLE**

**1-800-310-6451
SALES@MJLOGS.COM
CALGARY • DENVER**

U.S.A. LOGS FOR:

***ALABAMA
ALASKA
ARKANSAS
ARIZONA
CALIFORNIA
COLORADO
FLORIDA
IDAHO
ILLINOIS
INDIANA
KANSAS
LOUISIANA
MICHIGAN
MISSOURI
MISSISSIPPI
MONTANA
NEBRASKA
NEVADA
NEW MEXICO
NORTH DAKOTA
OKLAHOMA
OREGON
SOUTH DAKOTA
TEXAS
UTAH
WASHINGTON
WEST VIRGINIA
WYOMING***

CANADIAN LOGS FOR:

***ALBERTA
BRITISH COLUMBIA
SASKATCHEWAN
MANITOBA
FEDERAL AREAS***

Exploration Implications of Different Structural Styles and Processes of the Ultra-Deep Shelf Province, Northern Gulf of Mexico

Shallow structural styles of the northern Gulf of Mexico shelf are dominated by allochthonous salt. Canopies accommodated withdrawal and secondary diapirism, as well as linked systems of extension and contraction driven by gravitational failure of the margin. The Texas shelf is generally characterized by extensional faults that sole onto the welded canopies, with the matching contraction often located in deeper water and salt withdrawal being of secondary importance. Linked systems are also present on the Louisiana shelf but are of more limited extent because much of the area is dominated by withdrawal and diapirism. The primary reason for the distribution of the different shallow structural styles is the size and connectivity of the canopies, with smaller, isolated canopies more common on the Louisiana shelf.

Deeper structural styles and processes are enigmatic. The Louann salt and its equivalent weld serve as a regional detachment for gravitational failure, with proximal extension and distal contraction. But whether the deep shelf province is part of an extensional, or a contractional, province is the subject of controversy, with recent talks by experts proposing both interpretations. We suggest that the deep shelf is primarily a region of basinward translation and salt withdrawal, located between the extensional and contractional provinces. Extension and contraction are locally or occasionally important but are not the dominant processes.

Regional Model

In our model, derived from an interpretation of the regional GulfSpan 2-D seismic program from GX Technology, Mesozoic minibasins initially develop between inflated salt massifs, possibly triggered by local extension, contraction or strike-slip movement during early gravity gliding of the margin. Subsequent evacuation of these massifs forms basinward-dipping and -thickening minibasins as the salt is displaced into basinward-leaning primary diapirs. The diapirs eventually form counter-regional welds as the salt moves into allochthonous

Subsequent evacuation of these massifs forms basinward-dipping and -thickening minibasins

HGS General Dinner Meeting continued on page 23

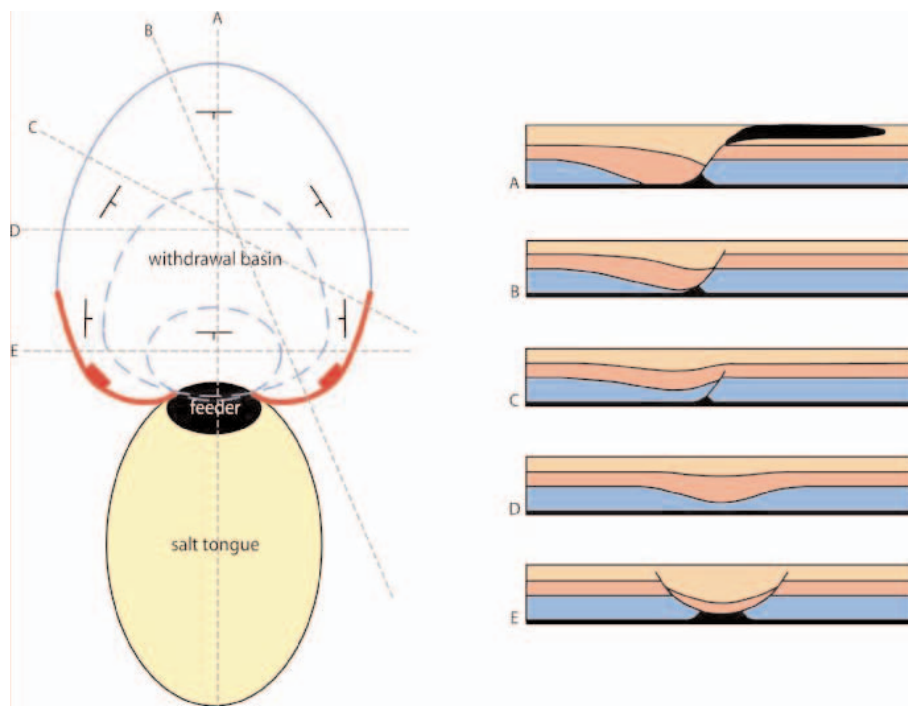


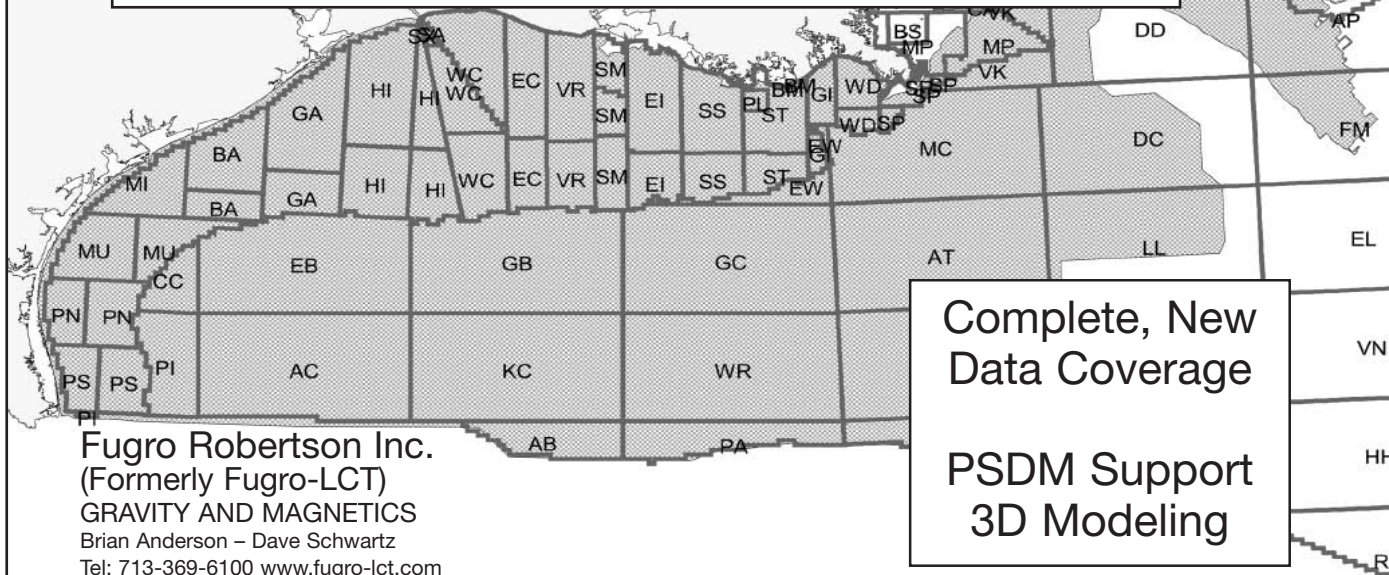
Figure 1. Schematic diagram of an asymmetric, counterregional withdrawal basin in plan view (left). The cross sections on the right illustrate the geometries along the corresponding dashed lines on the map.

Robertson

LCT Gravity & Magnetics



"The Place to Go"
For GOM Gravity Data and Interpretations



Complete, New
Data Coverage

PSDM Support
3D Modeling

Fugro Robertson Inc.
(Formerly Fugro-LCT)
GRAVITY AND MAGNETICS
Brian Anderson – Dave Schwartz
Tel: 713-369-6100 www.fugro-lct.com

Robertson

Data Solutions

Fugro Robertson Intelligent E & P Data Storage

'THE ONLY WAY TO GET VALUE FROM PHYSICAL ASSET DATASETS'



**Over 280,000 miles of core and cuttings
stored**

**Over 9 million physical items including
paper and tapes stored**

**292,000 sq ft of secure storage in Texas
over 28 acres**



**Cataloging, Scanning,
Seismic Vectorization,
Log Digitizing / Processing Services**

Web Based Data Delivery

**All supported by highly experienced E & P
Geoscientists**

Special rates now available - Become one of our satisfied customers today
Fugro Robertson Data Solutions 713 369 6100 info@fugro-cmstorage.com www.fugro-cmstorage.com

levels. Subsidence of the minibasins relative to outlying areas is greatest at the diapirs and decreases away from the diapirs along counter-regional faults until it is taken up only by folding beyond the fault tips. Depending on the orientation of a two-dimensional cut through such a system, the geometry can range from an asymmetric fault-bounded growth wedge to a faulted fold to a symmetric growth syncline (Fig. 1). Two or more such systems with variable orientations in proximity to each other result in a wide variety of structural styles: repeated counterregional faults/feeders, growth synclines, faulted synclines, turtle structures, faulted turtles and horst blocks (Fig. 2).

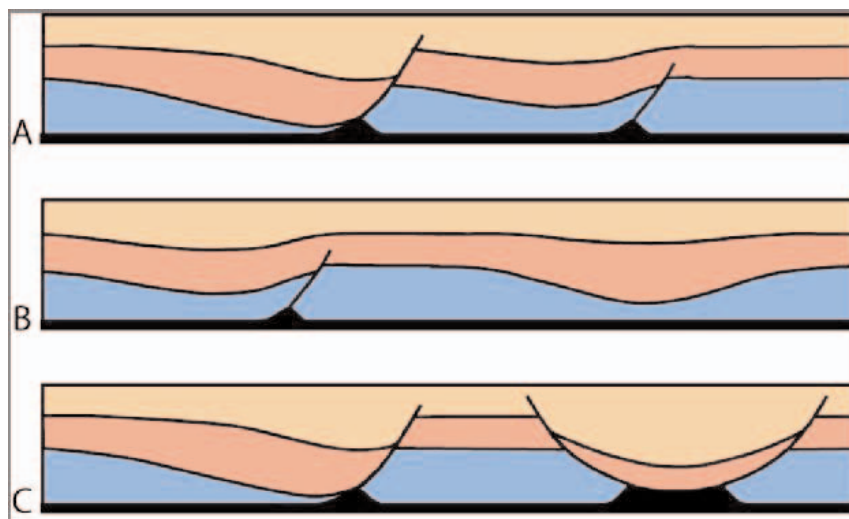


Figure 2. Some of the various geometries that result from two adjacent counterregional structures with similar or different orientations.

Conclusion

The deep shelf province did not move basinward as a rigid mass; instead, strong minibasins translated and even rotated relative to each other, so that the various diapirs, welds and faults would have been reactivated as extensional, contractional or strike-slip structures. For example, counterregional welds/faults that originally accommodated differential withdrawal may subsequently

be utilized as counterregional extensional faults as the footwalls move basinward. One result is that any overlying allochthonous detachment gets deformed and anomalous shallow growth geometries develop. We will show several models of late extension at the Louann level and corresponding examples from the Texas and Louisiana shelf provinces.

The ideas presented here are preliminary and must be tested with 3-D depth data. If valid, they have important ramifications for exploration of the deep shelf. ■

Biographical Sketch:

MARK ROWAN received a BS in biology from CalTech in 1976, an MS in geology from Berkeley in 1982 and a PhD in structural geology from the University of Colorado at Boulder in 1991. He spent 3 years at Sohio Petroleum Co. in Denver (1982-1985), 4 years at Geo-Logic Systems in Boulder (1985-1989) and 3 years at Alastair Beach Associates in Glasgow, Scotland (1989-1992). He then returned to the University of Colorado and in 1996 he was appointed Research Assistant Professor and led a large industrial research consortium investigating Gulf of Mexico salt tectonics. Rowan left this position in 1998 and founded his own company, where he consults and teaches for the petroleum industry and conducts research sponsored by industry.

Although Mark Rowan's background includes many types of tectonic environments, his recent research and consulting interests are focused on the styles and processes of salt tectonics, salt-sediment interaction, the geometry and kinematics of fold-and-thrust belts and applications of these phenomena to petroleum exploration. He is the author or coauthor of nearly 60 papers and 120 abstracts; a regular instructor for AAPG's Salt Tectonics school and a current AAPG Distinguished Lecturer.



NEW !!
Field Seminar

- **Paleocene Mass Transport Complexes**
What: A 4-day field seminar to study outcrops of slumps, debris flows, and thin-bedded turbidites of the Paleocene Chicontepec Formation.
Where: Tampico area, northeast Mexico
Who: Any geoscientist or engineer working the deepwater GoM, shallow hazard surveys or Multiple Service Contracts with Pemex.
When: On demand.

White Paper

- **Thin-Bedded Turbidite Levee Reservoirs**
What: Comprehensive report of nine producing fields. Sections include: Architectural Elements, Recognition Criteria, Depositional Models, Well Design, Production Characteristics and History, and Reservoir Model. Also includes: Logs, Monthly Production Profiles, and a Summary Poster.
Who: Any geoscientist or engineer exploring for, or developing thin-bedded reservoirs.

www.cosseygeo.com
 Steve Cossey at +1 (970) 385-4800
 cosseygeo@aol.com

5th Annual PESGB/HGS African Conference



Africa: Elephants of the Future

12-13 September 2006

Queen Elizabeth II Conference Centre, Westminster, London

First Announcement and Call for Papers

Africa continues to be an “elephant” of the upstream oil & gas industry, contributing nearly a third of new reserves in the last 5 years and being the only continent to replace its produced reserves. Future elephant- and rhino-sized fields will emerge from frontier exploration, continued development of proven/producing areas, and reserves growth in established fields. The full spectrum will be addressed in the upcoming PESGB/HGS 5th annual conference, which has established itself as the primary technical E&P conference on Africa. Attendance is expected to exceed 300 and include operators, consultants, governments and academia.

The event will include a large poster program in addition to a comprehensive oral program of about 25 high-quality presentations covering E&P in all regions of Africa.

Call for Papers

Abstracts (about 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 a paper is accepted, and they will be issued on a conference CD, which is again kindly sponsored by ECL - RPS Energy.

The conference committee for the 2006 London event 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.

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

Monday, February 20, 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#).

International Explorationists Dinner Meeting

by Scot I Fraser and Mike Lentini
Shell International Exploration &
Production, Inc.
EPT-S Regional Studies Team
Houston, TX

International Meeting

New Insights into South Atlantic Rifting from the Santos and Campos Basins, Offshore Brazil — A Tale of Two Basins

The Santos and Campos basins, offshore Brazil, resulted from the Early Cretaceous break-up of Gondwanaland. South Atlantic margin plate reconstruction models propose uniform east-west extension; rift-basin symmetry is thus inferred with the conjugate African margin. This would imply that half-graben development and planar dip-slip faults would characterise the structural style and geometry of the Santos and Campos syn-rift basins. Interpretation of depth-migrated regional 2D seismic data has revealed important structural relationships previously obscured by post-rift Aptian salt cover. Fault geometries and syn-rift isopach maps infer a more complex rift-margin evolution that controlled sediment dispersal patterns for the two basins during rifting. Pre-rift lineaments inherited from Archaean basement had imparted an important mechanical anisotropy to South Atlantic crust rheology. Contrasting basement response to extension differentiates deformation styles in the Santos and Campos basins, with the Santos Basin margin evolution more consistent with oblique extension and asymmetric rifting. Onshore igneous extrusives allow the direction of extension to be constrained temporally, with shallow crustal heat flow a primary influence on brittle versus more ductile rift kinematics.

These observations challenge the simple symmetric rift model and explain the spatial relationship of syn-rift tectonic and 'sag' phase thermal subsidence patterns with associated fault styles. Reconstruction of the continent/ocean boundary along the Campos and Santos basin margins and consideration of their conjugate African basins demonstrates clear rift asymmetry. The structural expression of the transition from continental to oceanic crust in the Campos and Santos basins is distinctive and is related to the primary rifting mechanism inferred for each part of the margin. The presence of the 'outer-horst' that seismically defines the continental oceanic boundary is well evidenced in the Campos Basin whilst in the Santos Basin this is equivocal. The conspicuous remnant intra-basinal Sao Paulo Plateau/Ridge, however, does suggest that the loci of oceanic crust formation in the Santos Basin may have experienced a dynamic basinward translation as a response to continued asymmetric lithosphere extension. The Cabo-Frio Arch structurally partitions contrasting

Campos and Santos syn-rift basin architectures, and the new interpretation has fundamental implications for their respective petroleum systems. ■

Biographical Sketch

SCOT FRASER is a geologist in the Shell Regional Framework Studies group based in Houston. Over the past five years he has worked on developing new play concepts at a regional scale across the Shell global exploration portfolio. Current interests have been the rift-evolution of extensional basins worldwide and, more specifically, the South Atlantic margin. He has worked extensively on the pre-salt evolution of the Brazilian margin, in particular the Campos, Santos, and Espirito Santo Basins. Generic interests have been the interaction of structure and sedimentation on the development of important petroleum systems.



Prior to joining Shell International E&P, he spent 6 years from 1994 with Amerada Hess, predominantly involved in regional analysis of the Jurassic of NW European basins. He was educated at Edinburgh University where he graduated with honors in geology, returning in 1990 as a post-graduate to pursue a PhD in geology and geophysics. He has published extensively on regional geological themes and is currently editing the proceedings from the recent "Return to Rifts Conference" for a special publication of the Geological Society of London. His technical interests remain basin analysis, seismic and sequence stratigraphy, and petroleum geology at a regional scale.

As an elected member of the Geological Society of London Petroleum Group he has convened the "Petroleum Geology of Deepwater Depositional Systems," "The Petroleum Geology of Northwest Europe," and "Return to Rifts" international conferences held in London, UK. He is invited co-convenor of the session on "Tethyan Basins" at the AAPG International Conference in Perth, Australia in 2006.

Functionality.



Imagine... having direct access to all the software tools you need for geologic and seismic interpretation.

Imagine also... that the tools are available in an integrated package with everything necessary for day-to-day interpretation AND for advanced analysis of seismic attributes, AVO anomalies, petrophysical characteristics and more.

Finally, imagine... that all these software tools run on the Windows® operating system, work off one executable and utilize the same project database.

KINGDOM software fulfills all these criteria AND is easy to use. SMT was the first upstream software provider to offer geoscience interpretation tools on Windows®, and is considered the leader in Windows®-based integrated interpretation technology.

KINGDOM's flexible licensing allows the user to work in a range of settings, for example: On a laptop in the field, on a workstation in the office, in a networked team environment (Intranet) or remotely across the web (Internet).

SMT provides software tools for a complete upstream workflow on the Windows® platform from seismic through simulation. Geoscientists and engineers rely upon **KINGDOM Software** for geological and geophysical interpretation; **(RC)² Software** for 3D reservoir geostatistical modeling; and **SURE Software** for advanced reservoir simulation.

*Contact SMT for a free evaluation of
KINGDOM, (RC)², and SURE.*

E&P BASED. Software FOCUSED.

KINGDOM

Geoscience Interpretation

(RC)²

Reservoir Modeling

SURE

Reservoir Simulation



Seismic Micro-Technology, Inc.
Houston: +1 713 464 6169
Europe: +44 (0)20 8240 6524
www.seismicmicro.com



©2005 ALL RIGHTS RESERVED, SEISMIC MICRO-TECHNOLOGY, INC.

Thursday, February 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 **Mr. Matthew R. Simmons**
Chairman of Simmons &
Company International

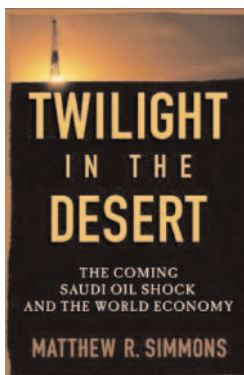
SIPES Meeting

Twilight in the Desert: The Coming Saudi Oil Shock and the World Economy

Saudi Arabia is the most important oil-producing nation in history. The secretive Saudi government repeatedly assures the world that its oil fields are healthy beyond reproach, and that they can maintain and even increase output at will to meet skyrocketing global demand. But what if they can't?

The book; *Twilight in the Desert* looks beyond the curtain to reveal a Saudi oil production industry that could soon approach a serious, irreversible decline. In this exhaustively researched book, veteran oil industry analyst Matthew Simmons draws on his own three-plus decades of insider experience and more than 200 independently produced reports about Saudi petroleum resources and production operations. What he uncovers is a story about Saudi Arabia's troubled oil

industry, not to mention it's political and societal instability, which differs sharply from the globally accepted Saudi version. ■



Biographical Sketch

Mr. Simmon's recently published book *Twilight in the Desert: The Coming Saudi Oil Shock and the World Economy* has been listed on the Wall Street Journal's best-seller list.

Simmons & Company International employs approximately 145 people and is a leader among the largest investment banking groups in the world. The company has completed approximately 600 investment banking projects for its worldwide energy clients at a combined dollar value in excess of \$65 billion.



BTA OIL PRODUCERS

- ◆ **ACQUIRING:** Drilling prospects in the Texas and Louisiana Gulf Coast onshore and state waters.
- ◆ **PREFERRED:** Operations, 3D support, Minimum 25% participation
- ◆ **CONTACT:** Paul Barber, ph: 281-872-5022, e-mail: pbarber@btaoil.com
16945 Northchase, Suite 1600, Houston, TX 77060



Geological Data Library, Inc.

Houston's **TECHNOLOGY** Data Library
Workstation Rentals for Members/Guests
SMT, Geographix, Neuralog Applications
Logs, Maps, Production Data, Research
Internet Access, Many Other Services

713 658-0033
811 Dallas, Suite 930
www.GeologicalData.com

Tuesday, February 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 Dr. Barbara J. Radovich
Silver Grass Enterprises
Sugar Land, Texas

West Cameron 76 Field and Deep Lower Tertiary Framework Revealed Using Sequence Stratigraphy Integrated with SPICE

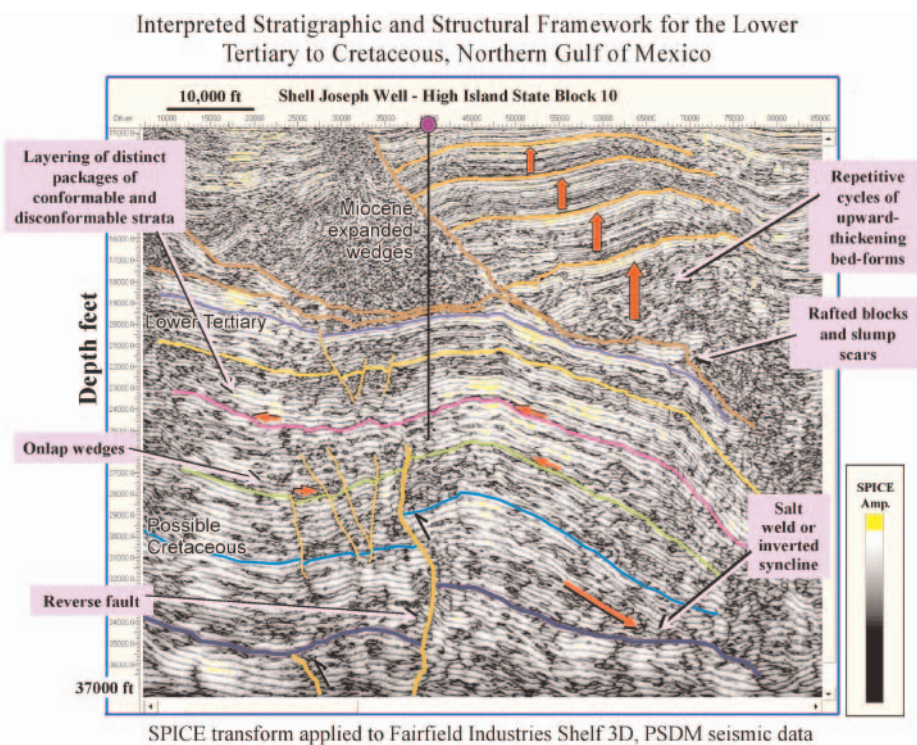
The Miocene to Cretaceous geology of the northern Gulf of Mexico is the subject of active investigation with the most modern data and techniques available in the industry. The geology is examined here with long-cable 3D seismic data and pre-stack depth migration (PSDM) processing to better image from below 13,000 ft to greater than 40,000 ft. The data is also input to a new type of transform. The SPICE (Spectral Imaging of Correlative Events) transform combines wavelet decomposition with spectral characterization and the result looks similar to an "outcrop." This bed form, layered framework is derived from all the frequencies in the seismic data and provides precise sharp-boundary criteria for interpretation.

The West Cameron 76 Field area and several deep lower Tertiary drilling sites are examined to illustrate the architecture of the bed

forms and faults. Emerging ideas include a mid-Tertiary section composed of many cycles of upward-thickening bed forms that represent prograding sediments filling and driving large expansion faults, Paleogene features that resemble rafted blocks as in West Africa, and a Lower Tertiary to Mesozoic extensional and compressional structured platform that shows upper to mid-slope criteria of thick wedges filling broad canyons cutting fairways to deep water.

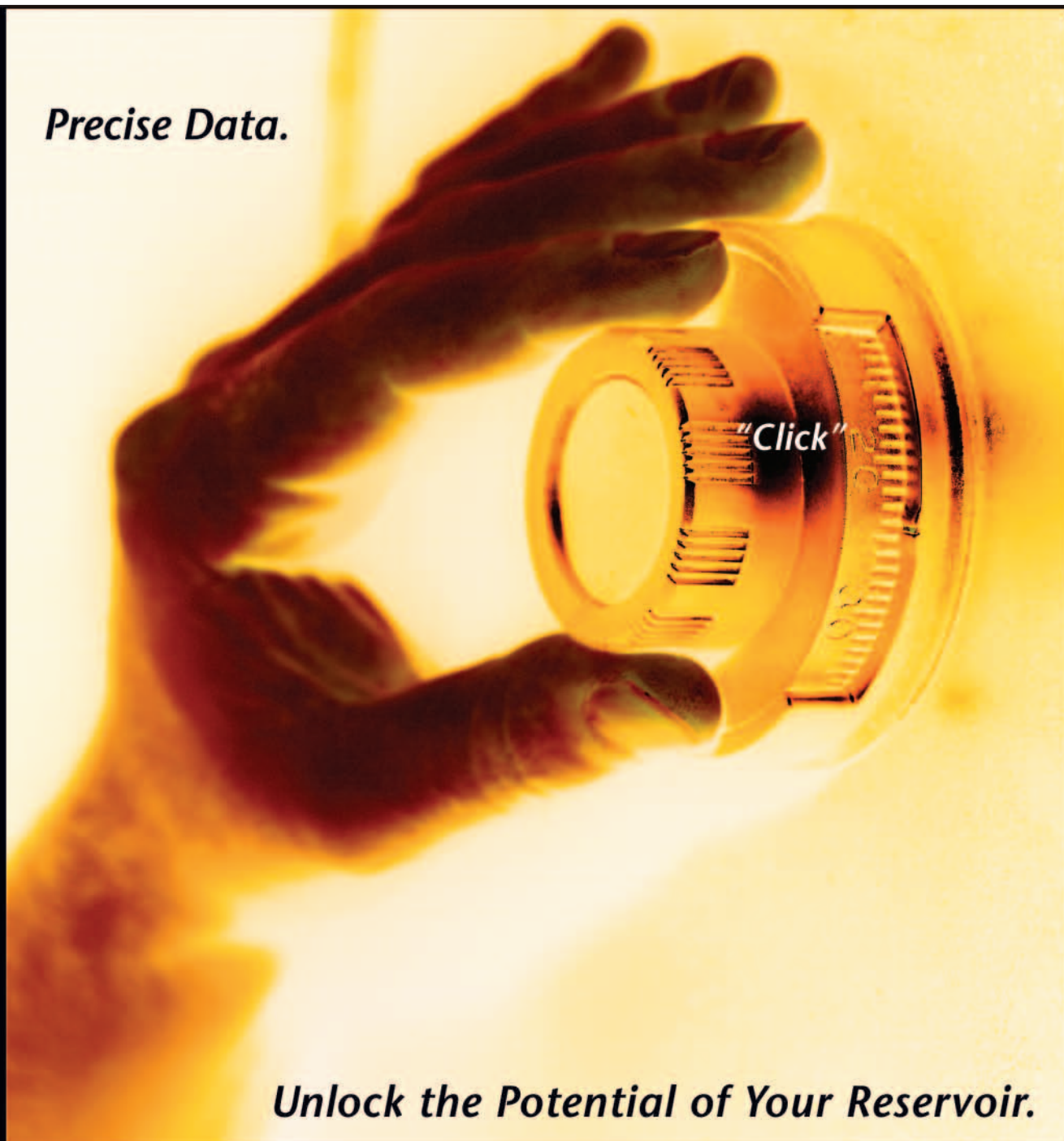
Mid-Tertiary sediments were deposited, during many cycles of sea level rises and falls, into a complex series of large, expanding, down-to-basin regional décollements that sole out onto lower Tertiary to Mesozoic blocks. The West Cameron 76 Field area sediments are the result of a combination of changing sea level and rapidly expanding accommodation basins forming at each

expansion fault. A new attribute called SPICE is applied to the data and the resulting bed form, layered framework shows distinct sequence and parasequence packages, with sands distributed in shelf to slope environments of deposition. Well log gamma ray curves tie to sharp SPICE bed form boundaries defined by downlap and onlap geometries, just like seismic data. The sequence architecture shows a thick stack of repetitive, bed thickening-upward cycles that are interpreted as prograding complexes filling the accommodation space at each lowstand of sea level. These tie to upward-coarsening log shapes. Slope fan parasequence sets also fill the rapidly forming accommodation space, and these tie to upward-fining log shapes. Pay sands are distributed among these prograding elements with distinct fairways of deposition. This architecture can be interpreted at great depths below existing well data and facies reliably predicted at these depths.



HGS Northsiders Luncheon Meeting continued on page 33

Precise Data.



Unlock the Potential of Your Reservoir.

Today's reservoirs are more challenging than ever. To unlock their potential requires absolutely precise data. OMNI Laboratories has established higher standards, more thorough protocols, and meticulous quality control measures to ensure unsurpassed accuracy. Plus, we have assembled the finest scientists in the field to provide superior interpretation and analysis. When precise data is paramount, choose OMNI Laboratories.

At OMNI, We've Got the Answers.



13 LOCATIONS IN THE U.S., CANADA AND SOUTH AMERICA • HEADQUARTERS: HOUSTON, TX • 832-237-4000 • WWW.OMNILABS.COM

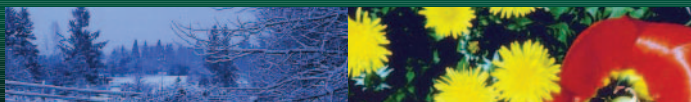
February 2006

Sunday

Monday

Tuesday

Wednesday



	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		1 NAPE
5	6 AAPG Winter Education Conference	7 HGS Executive Board Meeting	8
12	13 HGS General Dinner Meeting by M. Rowan (speaker) and K.Inman <i>"Exploration Implications of Different Structural Styles and Processes of the Ultra-Deep Shelf Province, Northern Gulf of Mexico"</i> Page 21	14	15
19	20 HGS International Explorationists Dinner Meeting by S. Fraser and M. Lentini <i>"New Insights into South Atlantic Rifting from the Santos and Campos Basins, Offshore Brazil - A Tale of Two Basins"</i> Page 25	21 HGS Northsiders Luncheon Meeting by B. Radovich <i>"West Cameron 76 Field and Deep Lower Tertiary Framework Revealed Using Sequence Stratigraphy Integrated with SPICE"</i> Page 28	22 Joint HGS/HAPL Luncheon Meeting by C. Oynes <i>"MMS Plan for Deep- and Ultra-Deepwater Leasing in the Gulf Of Mexico and Assessing 2005 Hurricane Damage to the Outer Continental Shelf"</i> Page 35
26	27 HGS North American Explorationists Dinner Meeting by D. Strickland (speaker), K. Johnson, J. Vrona, D. Schelling and D. Wavrek <i>"Structural Architecture, Petroleum Systems and Geological Implications for the New Hydrocarbon Province of the Covenant Field Discovery, Sevier County, Utah"</i> Page 37	28	<div> NOW you can make your reservations on-line at www.hgs.org </div>

NO ONE HAS MORE WAYS TO OPTIMIZE YOUR RESERVOIR.



psinfo@corelab.com

24-hour wellsite service hotline: 713-328-2121

2	3	4
9	10	11
16	17	18
23	24	25
<div style="text-align: center; font-weight: bold;">Reservations:</div> <p>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.</p>		



Upcoming GeoEvents

- March 5–9**
2006 APPEX London *Page 44*
- March 13**
HGS General Dinner Meeting
Challenges in Structure Prediction when Develeoping Remaining Field Reserves Using 3D Seismic, Shelf GOM
- March 16**
SIPES Luncheon Meeting
- March 20**
International Explorationists Dinner Meeting
Mass Transport Complexes in Offshore Trinidad and World Wide Analogs
- March 21**
Environmental and Engineering Dinner Meeting
Pierce Junction Remembered: City of Houston Brownfield Site
- March 26**
HGA Spring Trip
Enjoy a bus trip from Houston to the Grand Theater in Galveston to view "Thoroughly Modern Millie."
- March 29**
HGS General Luncheon Meeting
The Princess Discovery — Sub Salt Gulf of Mexico: Challenges of Sub-Salt Imaging in a Fast-Paced Sub-Sea Development
- April 9–12**
2006 AAPG Annual Convention
George R. Brown Convention Center, Houston, TX *Page 19*



Collarini Energy Staffing Inc.

Full-Time and Temporary Exploration and Production Personnel

Facilities ♦ Drilling ♦ Production ♦ Reservoir Engineers ♦ Landmen ♦ Geoscience ♦ Management
Procurement ♦ Information Technology ♦ Health and Safety ♦ Accounting ♦ Administrative Support

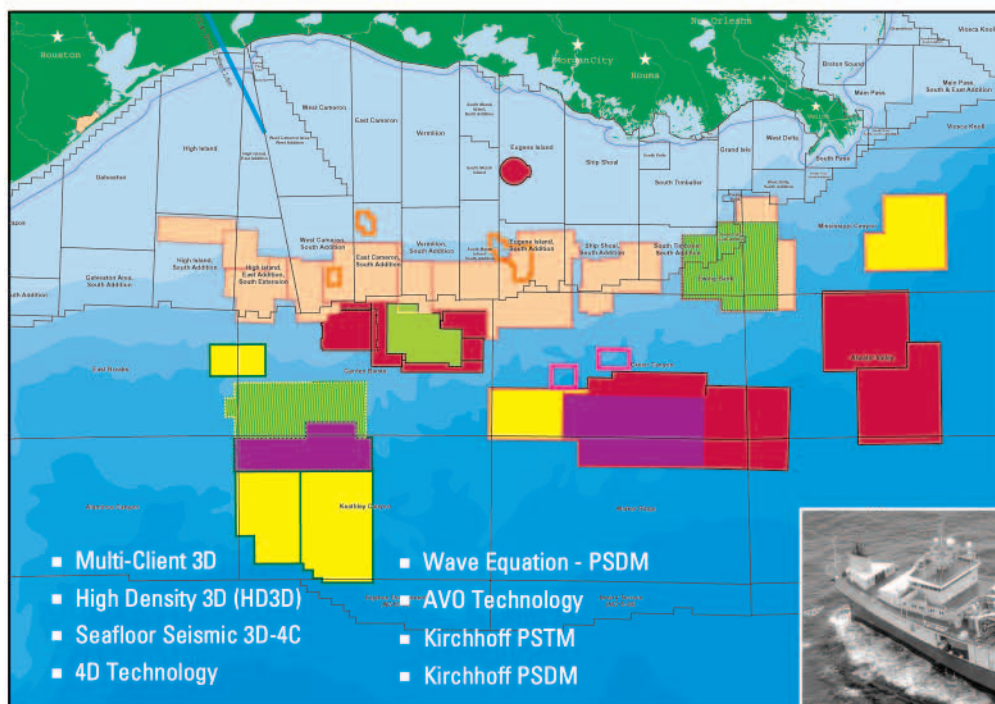
1111 Richmond, Suite 126
Houston, TX 77082
(832) 251-0553
(832) 251-0157 Fax

www.collarini.com

909 Poydras St., Suite 1450
New Orleans, LA 70112
(504) 592-4007
(504) 522-9097 Fax

Connecting the Industry's Experts

The PGS Gulf of Mexico Data Library: For the Reprocessed Data You Need



3D Prestack Time and Depth Migration Projects:

- Flex Trend (FlexR) and deep water reprocessing projects
- True amplitude processing
- Bending ray Kirchhoff PSTM
- Turning wave Kirchhoff PSDM
- Wave equation PSDM



Call us today for details on the entire PGS portfolio.

PGS Onshore Seamless Coverage

Onshore – Transition Zone – Marine

- Ultra Long 12,500m Offsets
- 12.5m CDP Interval
- 125/250 fold (Onshore/Offshore)
- 20 Second Records

Don't Drill Blind
Call PGS Onshore



HOUSTON
15150 Memorial Drive
Houston, TX 77079
Tel: 281-509-8000 / Fax: 281-509-8500

A Clearer Image
www.pgs.com



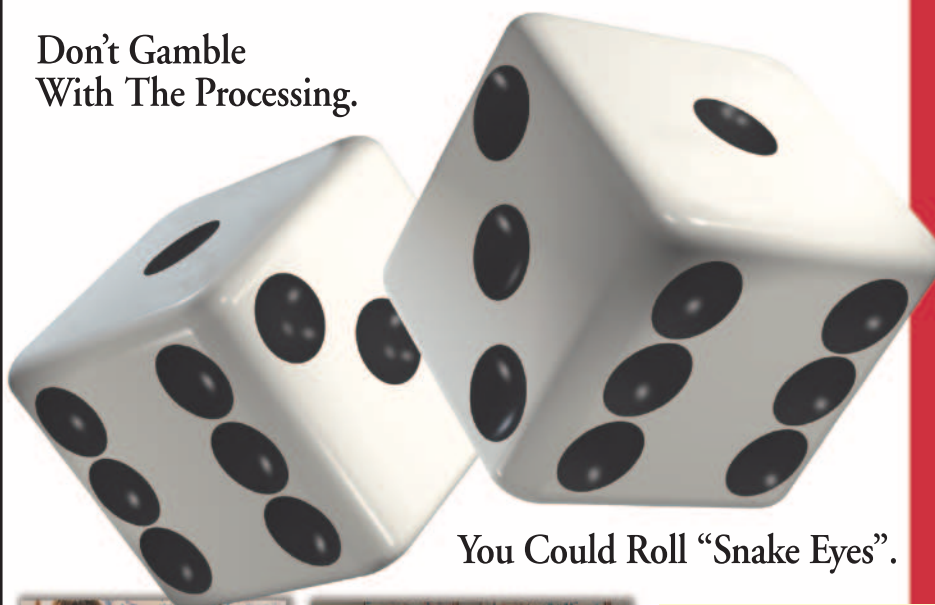
The High Island (HI) state waters area has been the site of deep drilling recently by the Shell Joseph well in HI State block 10. The SPICE sections on PSDM data show a structured platform of lower Tertiary to Mesozoic sediments in this area. These structures are extensional but in places look like compressional reverse faults. The top of this section shows features that are possible rafted blocks and major slump scars that fill in with younger sediments, similar to the offshore West Africa and Brazil shelf margins. The lower Tertiary bed forms are characterized by laterally continuous conformable bed sets, but also by packages of disconformable beds that resemble hummocky slope fans. Criteria indicative of broad canyon cuts are seen on several sequence boundaries and these canyons are filled with sediment onlap wedges. This is characteristic of upper to mid-slope environments of deposition, and these canyons could provide fairways to transport sands into deeper water. This geologic time is at the end of the Late Cretaceous Laramide orogeny. Uplift and restructuring of this area would enhance canyon cutting, erosion and redeposition of sediments to the basin in deeper water. Compressional features in the deep shelf platform may be linked to structural overprints from the end of the Laramide orogeny that could restructure the original graben/transform architecture. The Cretaceous section is interpreted as the most conformable bed-set package; possible salt welds are seen at the deepest levels of the data. ■

Biographical Sketch

DR. BARBARA J. RADOVICH has 28 years of worldwide experience in 2D and 3D seismic and well log sequence stratigraphy of clastics and carbonates, fluvial to deepwater settings, and regional basin to reservoir scales of investigation. She is a proven oil-finder, having developed new deep water interpretation criteria leading to major discoveries in the deepwater offshore Nigeria for which she received Texaco's highest research award. She is a recognized speaker on the integration of 3D seismic attribute and visualization techniques within a framework of sequence stratigraphic architectures, especially in shelf margin to deepwater settings. Her experience covers over 40 areas around the world including West and East Africa, South America, the Mediterranean, the Gulf of Mexico, the North Sea and Southeast Asia. Presently she works as an independent consultant, but her previous corporate affiliations are Texaco, Pennzoil and Exxon Production Research.



**Don't Gamble
With The Processing.**



You Could Roll "Snake Eyes".

Processing 24/7!

For over 50 years, Dawson Geophysical has earned the reputation of giving our clients the most for their geophysical dollar.

With processing centers in Houston and Midland, we're ready to provide the experience and results where you need them: *South Texas, Gulf Coast Region, Fort Worth Basin, Mid-Continent, Permian Basin* and anywhere Dawson's Crews acquire seismic data.

Take the "gamble" out of your choice and put Dawson's processing team to work for you 24/7!



Dawson Geophysical Company

Houston, Texas 713-917-6772

Midland, Texas 432-684-3000 • 800-D-DAWSON

www.dawson3d.com



**Processing Centers
in Houston and
Midland.**

DID YOU KNOW

We have worked on more than 400 projects for more than 100 clients?



1966 Skyline of Houston. Courtesy of the Houston Heritage Society.



Seis-Strat Services LLC

Houston, TX • +1 713 532 5588 • www.seis-strat.com

GEOLOGICAL, GEOPHYSICAL, AND ENGINEERING CONSULTING SERVICES FOR THE E&P INDUSTRY

©2006 Seis-Strat Services LLC - All Rights Reserved

MORE power

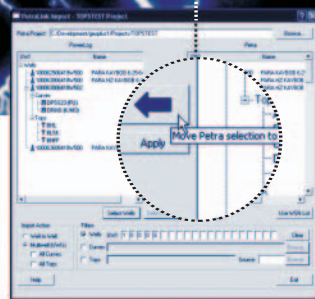
... options
... connectivity
... innovation



Power Log

Release 2.6

- Import/Export of curves and formation tops from Petra® projects and the Jason Geoscience Workbench
- Unique Well Identifiers (UWI/API) to ensure proper data exchange and to enhance LAS batch imports
- Improved read logic for curve descriptors and non-standard LAS files
- Flexible licensing options - "borrow" an individual license from a network for portable use



PowerLog is the industry standard for Windows®-based petrophysical analysis and delivers even more innovative features with release 2.6 . . .

Connect with more power!
To learn more about PowerLog Release 2.6 or to request a free evaluation go to:

www.petcominc.com



FUGRO-JASON
A FUGRO GEOSCIENCE COMPANY

by **Chris Oynes**
GOM Regional Director
Minerals Management Service
New Orleans, LA

MMS Plan for Deep- and Ultra-Deepwater Leasing in the Gulf Of Mexico and Assessing 2005 Hurricane Damage to the Outer Continental Shelf

The Regional Director for the Gulf of Mexico OCS Region of the Minerals Management Service, Chris Oynes, will present a talk to a joint meeting of the Houston Geological Society and Houston Petroleum Area Landmen (HAPL). He will review several recent key events in the Gulf of Mexico and summarize the recent oil and gas lease sales and their contribution to the growth of the deepwater and ultra-deepwater exploration and development. Deepwater exploration (greater than 1,000 feet of water depth) and ultra-deepwater exploration (greater than 5,000 feet of water depth) have added large reserves to the Gulf of Mexico OCS in recent years and provide a substantial portion of the total production and a large percentage of the total domestic U.S. production. Mr. Oynes will provide insight to future trends in leasing and potential exploration and production areas.

Two of the most significant events in 2005 were the landfall of Hurricanes Katrina and Rita. Mr. Oynes will provide an overview of the destruction caused by these hurricanes and discuss their impacts on the OCS production. Both hurricanes destroyed numerous drilling rigs and broke a significant number of rigs free of their moorings. Mr. Oynes will discuss the hurricanes' impact along with the Minerals Management Service's research activities to the review of design standards for platforms and drilling rigs. ■

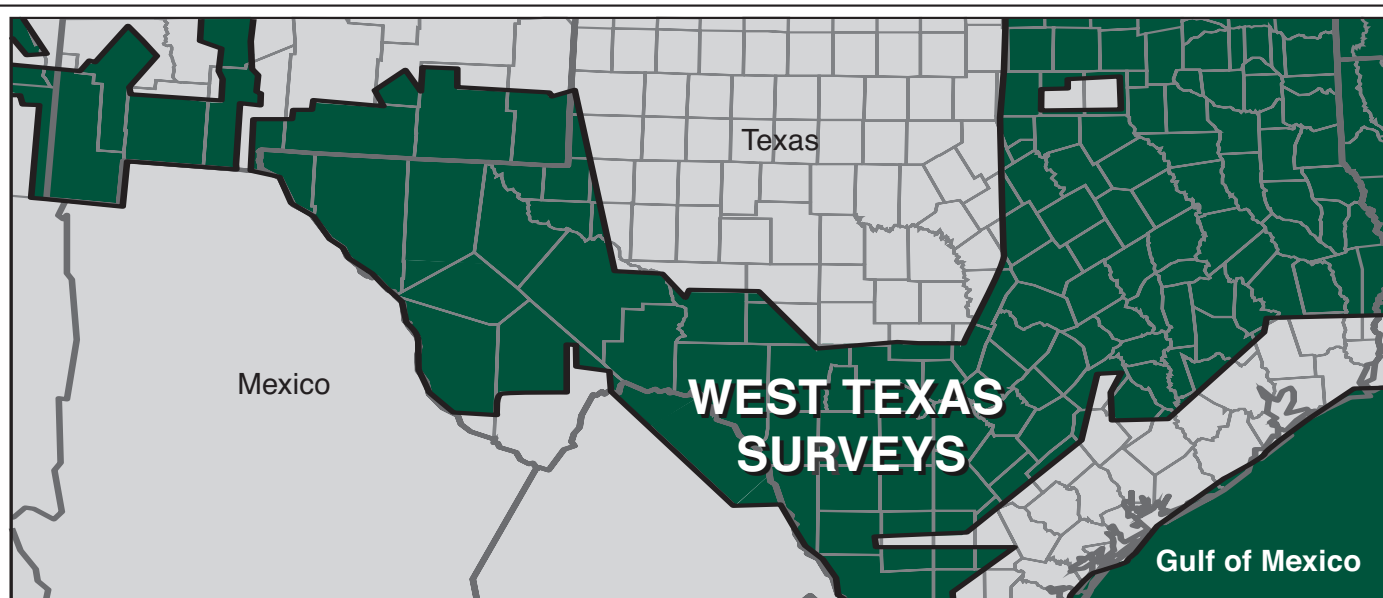
Biographical Sketch

CHRIS OYNES is the Regional Director for the Gulf of Mexico OCS Region of Minerals Management Service, located in New Orleans. Mr. Oynes manages the leasing of the OCS lands for oil,

gas and other mineral development and supervises the regulation of operations and the protection of the environment on those leases, which involve 4,000 platforms; covering the five Gulf Coast states. He manages a staff of 550, comprising environmental scientists, biologists, geologists, geophysicists and petroleum engineers. Mr. Oynes received a Presidential Award (1998) as a Meritorious Executive in the senior executive service of the federal government. He has received the two highest honor awards that the U.S. Department of the Interior bestows. Chris Oynes earned a JD degree from George Washington University and he has 29 years of federal government experience with energy matters.

The MMS is the federal agency in the U.S. Department of the Interior that manages the nation's oil, natural gas and other mineral resources on the Outer Continental Shelf in federally-owned offshore waters. The agency also collects, accounts for and disburses mineral revenues from federal and American Indian lands. The MMS disbursed more than \$8 billion in FY 2004 and more than \$143 billion since the agency was created in 1982. Annually, nearly \$1 billion from those revenues go into the Land and Water Conservation Fund for the acquisition and development of state and federal park and recreation lands.





WEST TEXAS SURVEYS



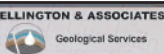
NON-EXCLUSIVE AEROMAGNETIC AND GRAVITY DATA AND INTERPRETATION

High resolution aeromagnetic data coverage throughout western Texas
For more information, visit www.fugroairborne.com or contact us.

Houston - Jeff Rowe
T: +1 713 369 6123
jrowe@fugro.com


Calgary - Jim Genereux
T: +1 403 777 9280
jgenereux@fugroairborne.com

FUGRO AIRBORNE SURVEYS FLYING WORLDWIDE

Chemostratigraphic services - the Americas

Improved correlation
Sediment provenance
Geochemical well logging



Alaska: North Slope, Cook Inlet
Gulf of Mexico: Deepwater and shelf
Canada: Offshore E. Canada, W. Canada, McKenzie Delta

Rapid in-house data acquisition based in Houston using XRF-WD technology

Data interpretation
Milly Wright, tel: 713 479 8557,
millywright@chemostrat.co.uk

Sample management
Bill Ellington, tel: 713 956 2838,
bill@ellingtongeologic.com

www.chemostrat.com

global exploration starts here

DATA AND SERVICES

- GLOBAL GRAVITY AND MAGNETIC DATA
- INTEGRATED EXPLORATION STUDIES
- PETROLEUM SYSTEMS EVALUATION
- ULTIMATE SATELLITE GRAVITY

BENEFITS

- REDUCE EXPLORATION RISK
- NEW VENTURE OPPORTUNITIES



www.getech.com
GETECH Leeds, UK +44 113 343 5240 GETECH Houston, USA +1 281 240 0004

ENDEAVOR NATURAL GAS, LP

Seeking Drill-Ready Prospects
Texas and Louisiana Gulf Coast
East Texas • North Louisiana

Large working interest and operations preferred but not required.

Contact: Bruce Houff
(O) 713 658-8555 • (F) 713 658-0715
(Email) [bhough@endeavorgas.com](mailto:bhouff@endeavorgas.com)
1201 Louisiana, Suite 3350 • Houston, Texas 77002

Monday, February 27, 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#).

HGS North American Explorationists Dinner Meeting

by Douglas K Strickland (speaker),
Keith Johnson and John Vrona
Wolverine Gas and Oil
Dan Schelling
Structural Geology International
Dave Wavrek
Petroleum Systems International

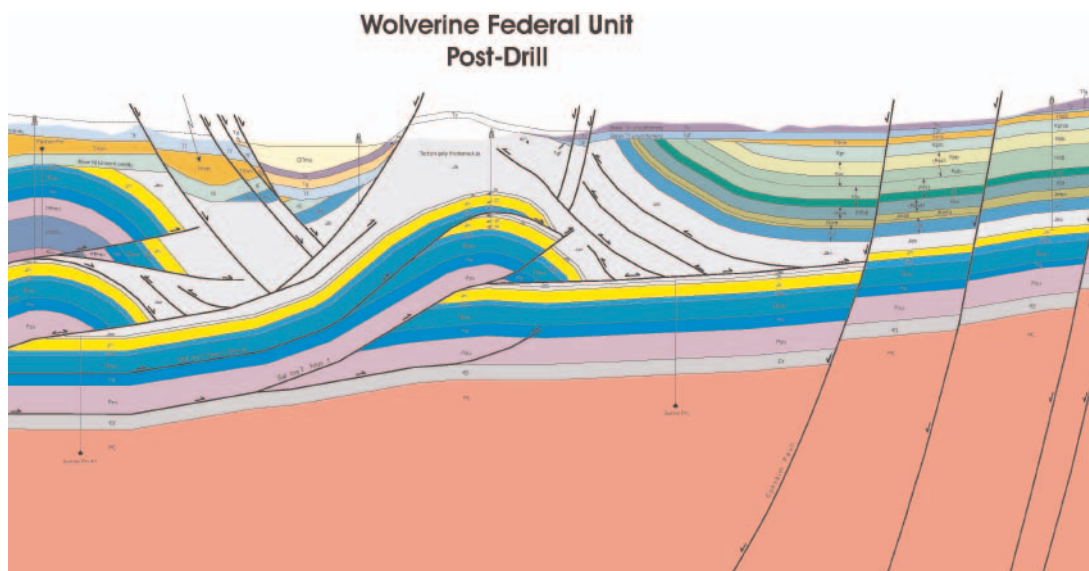
North American Dinner Meeting

Structural Architecture, Petroleum Systems and Geological Implications for the New Hydrocarbon Province of the Covenant Field Discovery, Sevier County, Utah

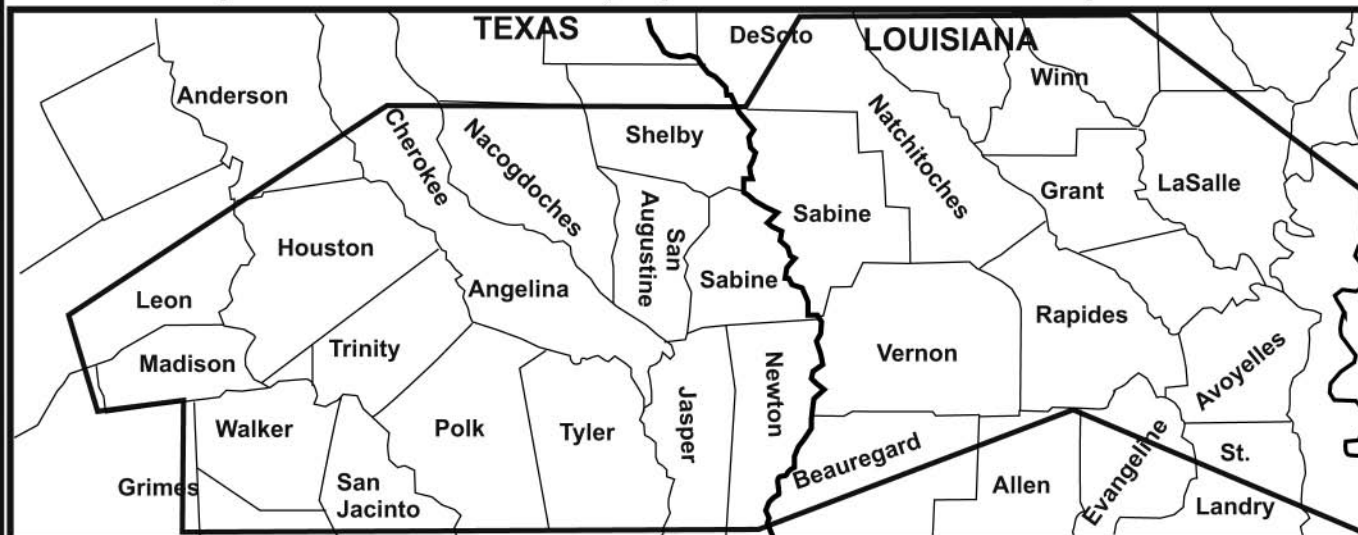
Structural analysis, seismic interpretation and organic Geochemistry are all part of the petroleum systems synthesis that contributes to the Covenant Field discovery in Central Utah by Wolverine Gas and Oil Corporation. The Kings Meadow Ranch 17-1 penetrated a highly porous and permeable reservoir in the Jurassic Navajo Sandstone, which contains a 450-foot oil column. The Covenant Field is located along a frontal structural uplift of the Central Utah thrust belt, where Late Cretaceous-Early Tertiary compressional deformation resulted in the development of thrust faults and associated hanging wall anticlines buttressed against the ancestral Ephraim extensional fault. The traps are charged from Mississippian foreland basin sediments to the west of the discovery. Hydrocarbon generation was driven by initial sedimentary loading (oil generation) followed by tectonic loading (gas generation) associated with the evolving thrust belt. Evaporite deposition in the overlying Arapien formation provides a highly effective seal for the accumulations. Jurassic extensional faults may be critical in defining the location of thrust faults and antiformal stacks, which in turn define structural traps along this newly discovered onshore hydrocarbon province. ■

Biographical Sketch

Douglas K. Strickland received his BS in geology from the University of Southern Colorado in 1973 and a masters degree from the University of Wisconsin-Milwaukee in 1975. He worked on a PhD at the University of Kansas before joining Chevron in 1978, working on the Utah-Montana overthrust belt. In 1980 he joined W.R. Grace, where he worked projects across the Rockies and held positions of increasing responsibility, becoming V.P. of Exploration in 1986. He is currently Exploration Manager for Wolverine Gas and Oil in Oklahoma City.



BOSSIER-COTTON VALLEY?, FRACTURED SWEET SPOTS?
LOWER CRETACEOUS CARBONATE POROSITY TRENDS? WOODBINE?
HIGH RESOLUTION AEROMAGNETIC SURVEY and INTERPRETATIONS
LOWER CRETACEOUS SEQUENCE STRATIGRAPHIC and RESERVOIR STUDY
 * 40 tops for over 1400 wells * Porosity maps for each interval * Core and sample studies



Bill Pearson
PEARSON TECHNOLOGIES, Inc.
 303-989-2014
bpearson@pearsontechnologies.com

Richard Inden
LSSI, LTD.
 303-623-6156
richardinden@qwest.net

1968
37 years
2005

PTS Labs
CORE ANALYSIS SERVICES

**Setting the standard with 37 years of
 continuous Core Analysis experience**

4342 West 12th Street - Houston, Texas 77055
 Phone: 713-680-2291 - Fax: 713-680-0763
www.ptslabs.com - coreinfo@ptslabs.com

Working for America's Energy Future and a Quality Environment

by *Chris Oynes*, Regional Director, GOM, MMS

The Minerals Management Service (MMS) Gulf of Mexico OCS Regional Office strives to be a showcase of careful, safe and efficient administration of the nation's offshore oil and gas and other mineral resources. Only close cooperation and consultation with state and local governments and the wide array of industry and other constituencies that exist can make this possible. The MMS's Gulf Regional Office has responsibility for OCS oil and gas and some other mineral matters from offshore Texas to Maine, although most activity is concentrated in the Gulf of Mexico.

The offshore oil and gas industry in the federal part of the Gulf of Mexico is truly a large and multifaceted group. In October 2004, 105 exploration wells were being drilled in Gulf waters and 33 of these were in water depths of 1,000 feet or greater. Currently, there are approximately 4,000 producing platforms, of which about 1,962 are major platforms (954 of these are staffed by personnel). About 152 companies are active in the Gulf.

These are exciting times in the Gulf of Mexico. The Gulf's contribution to the nation's energy supply is truly remarkable. Production in the federal portion of the Gulf OCS amounted to 23% of the nation's natural gas production (just under 5 trillion cubic feet) and about 30% of the nation's oil production (570 million barrels) in 2002. Deepwater production has been rising rapidly. Three lease sales are planned in 2005—one each in the Western, Central and Eastern Gulf regions.

Excitement in the Gulf focuses on three areas. First is deepwater. In 2004 the MMS released the report *Deepwater Gulf of Mexico 2004: America's Expanding Frontier OCS Report MMS 2004-021* (<http://www.gomr.mms.gov/homepg/whatsnew/techann/2004/2004-021.pdf>) on deepwater activity. The report addressed the intense interest in the oil and gas potential in the deepwater tracts in the Gulf of Mexico. About 14 new deepwater projects were planned to start production in 2004 in the Gulf of Mexico. The use of advanced technology is a marvel in the OCS program. In November 2003, ChevronTexaco drilled an exploratory well in a world record water depth of 10,011 feet of water on Alaminos Canyon Block 951. The MMS approved in 2002 the first use in the United States of synthetic (fiber) mooring systems. The MMS has previously released an environmental assessment of the effect of deepwater exploration, development and production. Many changes and new analysis are under way.

A second area is ultra-deepwater (5,000 feet and greater), where a number of discoveries have recently been made. In October 2004, exploratory wells were being drilled by ChevronTexaco in 9,226 feet of water (AC 815), BP in 7,591 feet (WR 724) and Dominion in 7,946 feet (DC 445). A third area of excitement is the deep shelf. This area on the shelf is in shallow water depth but lying below 15,000 feet geologically has hardly been explored. MMS is offering incentives to look for deep natural gas in this area.

The MMS always remains concerned that OCS operations need to be conducted in a safe manner. Related to this, the MMS issued final revisions in its drilling regulations in March 2003 and issued new final regulations concerning training of OCS workers. Through its inspection program, the MMS conducted more than 16,000 safety and environmental inspections of offshore oil and gas activity last year. An environmental assessment of the effects of seismic activity was recently issued.

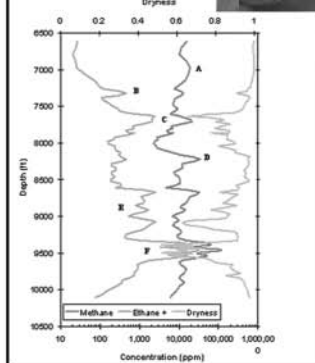
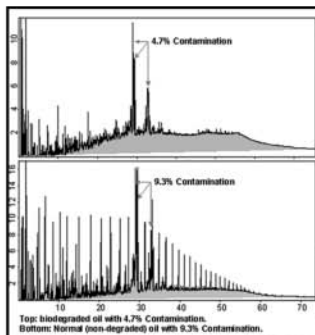
The MMS conducts an extensive environmental studies program in the Gulf of Mexico, having sponsored more than 220 environmental studies in the Gulf of Mexico and costing over \$130 million, to assess the effects that oil and gas drilling and production may have on the marine, coastal and human environments. Recent reports have focused on deep sea life, deep spills, sperm whales and economic effects. An award was made on biotechnology research. A contract to collect ocean current data with Mexico was issued.

In the Eastern Gulf of Mexico, comparatively few leases exist (146) but much activity is planned. Twenty exploration plans have been filed on leases issued as a result of Sale 181 held in December 2001. Eight exploration wells have been drilled already. In the Eastern Gulf, lease sale 189 was held in December 2003. A final environmental impact statement on Sales 189 and 197 was released on May 30, 2003.

Several proposals to import LNG into the United States through a regassification plant located out in the ocean in the Gulf of Mexico have been filed.

There is no offshore oil and gas activity off the Atlantic seaboard. The last remaining 8 leases in existence offshore North and South Carolina were relinquished back to the government in

Working for America's Energy Future continued on page 49



Geochemistry Solutions from the Experts

With an average of 22 years experience, Westport geochemists have the knowledge and expertise to solve reservoir development and management issues.

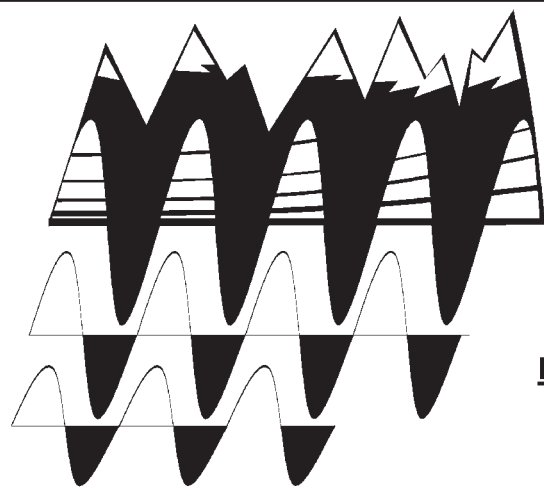
Our multi-disciplined staff can address a broad range of issues including:

- Defining and understanding the petroleum systems
- Understanding petroleum risk
- Production geochemistry
 - Reservoir continuity
 - Partitioning of commingled production
- Petroleum chemistry
- Oil quality distribution

Westport Technology Center HALLIBURTON

6700 Portwest Drive; Houston TX 77024
Tel: 713.479.8400 sales@westport1.com
Fax: 713.864.9357 www.westport1.com

© 2004 Halliburton. All rights reserved.



**12th
Annual**



Register at www.rmag.org

Friday, March 10th, 2006
Marriott Hotel Downtown Denver

3-D Seismic Symposium

“Resource–full Rockies”

Keynote: Steve Kneller & Sally Zinke - Ultra Petroleum
...on “Pinedale Giant Gas Field”

Kickoff: Rutt Bridges and “Next 10 Years in the Rockies”

...and 3-D Seismic Cases:

Green River Basin Structure Utah gas discovery - Bill Barret Corp.

Image Reservoirs & Gas - Vp/Vs ratios; Full Wave surveys

Piceance Basin and Western Canada examples

Barnett Shale - Ft. Worth Basin Wichita Mt. Front - SW Oklahoma

Rocky Mountain Association of Geologists
Denver Geophysical Society

Volunteers of the Month



Janet Combes is an Exploitation Geologist at ExxonMobil Production Company, and has been actively involved in a variety of HGS committees and projects for years. Some of these include having been on the HGS board (Director), founder (and member) of the Northsider's Committee, Co-chair for Earth Science Week, member of the Museum committee, etc. Most recently, she was responsible for the overwhelming success of the society's participation in CAST. CAST is the Conference for the Advancement of Science Teaching, the annual meeting of the Science Teachers Association of Texas (STAT). STAT is a statewide organization of elementary through college level science teachers dedicated to maintaining the highest levels of science education in Texas schools. One of their goals is to cooperate with other science-oriented organizations in the promotion of good science teaching. CAST was held in Houston on October 27-29th, 2005 at the Reliant Center.

Janet recognizes the importance of sharing our enthusiasm for geoscience with K-12 educators in order to prepare the next generation to join our profession. CAST was last held in Houston in 2003 and Janet was an active participant. She kept in touch with

the CAST staff and was personally invited back this year as an HGS representative. She learned that teachers were especially interested in the topic of soils and so she immediately began planning a short course on soils, which was very warmly received. Months before the meeting, she began recruiting volunteers for CAST and kept track of the many field trips, short courses and workshops offered by HGS volunteers. Janet personally led a field trip to Blue Lagoon that was especially popular with teachers, a trip so successful that she has been requested to give it again to two other groups.

HGS participation at CAST is the responsibility of the Academic Liaison Committee. Janet went above and beyond the call of duty when she completely took over the coordination of all CAST activities days before the meeting started when the chairman of the committee had a baby and began maternity leave! The many positive comments from CAST participants show that Janet did an excellent job! And she did all this as she was supporting her family in Louisiana that suffered through Hurricane Katrina.

Janet has a BS in Geology from Louisiana State University, a Masters in Geology from the University of Texas, and a PhD in Geology from the University of Texas at Austin.

The HGS Board acknowledges and thanks Janet for her spirit of volunteerism, and dedication and work for the Houston Geological Society. ■



Cheryl Desforges is a geologist at Ryder Scott, currently working on reserve analysis projects with Ryder Scott engineers. She has been quite active this past year in the Houston Geological Society, serving as Co-chairman of the Finance Committee, assisting in revising the forms used in the budget process and serving as liaison with the investment advisors; elected as Treasurer-Elect for 2005-06; chairing

the Continuing Education Committee (2004-05); and serving as Co-Chairman of the Coastal Subsidence Conference sponsored by the Houston Geological Society and the Engineering and Science Council of Houston (ECH).

Cheryl and the Continuing Education Committee successfully organized the 2005-2006 four-part mini-series on Petroleum Reserves. She led her committee in the innovative addition of videotaping the Continuing Education Series on Petroleum Reserves. She was responsible for obtaining the donations that paid for the equipment that is now available for any group in HGS to use. (CD-ROMs for the successful Petroleum Reserves course are available through the HGS office.)

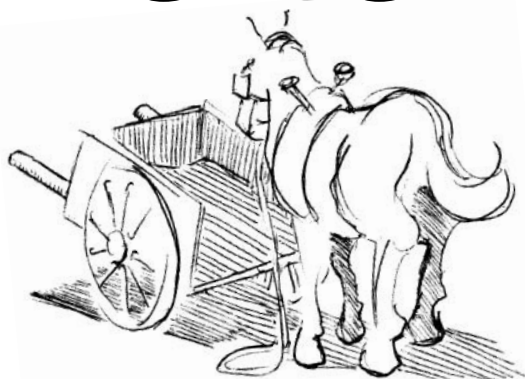
The Subsidence Conference held last November was successful in a large part because of Cheryl's efforts to keep the committee on track, avoid special group interests, attract diverse speakers (proponents and opponents) and raise donations to defray costs of the symposium. Several of Cheryl's committee members reported, "This event would not have been a success without Cheryl's efforts."

Although attendance was down because of the hurricane aftermath, the presentations resulted in animated question and answer sessions. For those who could not attend, the conference was taped and CD-ROMs will be available later this year.

Cheryl has a BS in geology from Texas Christian University and an MS in physical science/geology and an MBA (finance) from the University of Houston. She is a member of AAPG, GSA and SEG and is a licensed Professional Geologist in the State of Texas. Before coming to Ryder Scott, she worked for a variety of companies, the most recent being Subsurface Consultants & Associates and Randall and Dewey, Inc.

The HGS Board acknowledges and thanks Cheryl for her spirit of volunteerism, and dedication and work for the Houston Geological Society. ■

Trying to Explore Without Data?



USE OUR 35 YEARS OF EXPERIENCE
IN THE GULF COAST TO

MAXIMIZE YOUR EXPLORATION EFFORTS!!

GCS Digital Data License

- We've Already Done The Regional Work.
- Use Your Software & Our Data To Begin Exploring Today.
- Eliminate High Start-Up Costs.
- Create Isopach & Structure Maps In Minutes.
- Data License Includes:

GCS Formation Tops Database
www.StructureMaps.com
Land Grid
Well Spots
Raster Logs
Maintenance



**Geological Consulting
Services, Inc.**
P.O. Box 37188
Houston, Tx 77237-7188
(713) 785-7900

www.StructureMaps.com



**ALPINE
RESOURCES
INC.**

TAKING DRILL-READY PROSPECTS

CONTACT: DAN KELLOGG x103
DENNIS FERSTLER x104

DKELLOGG@ALPINERES.COM
(713) 655-1221 TEL
(713) 951-0079 FAX

1201 LOUISIANA, SUITE 3310
HOUSTON, TEXAS 77002

Promap Corporation Oil & Gas Production Maps

Color coded by pay zone
Pipelines

Updated every six months
Coal Bed Methane

Basins - Areas of Coverage:

Williston - Denver - Illinois - Nevada
Michigan - Cincinnati Arch - Powder River
Arkoma - Western Interior - Uintah-Piceance
North American Coal Basins with Pipelines
North American Devonian Shale with Pipelines

5535 S. Forest Lane
Greenwood Village, CO 80121
(303) 617-7531
(303) 617-8956 (Fax)
www.promapcorp.com

Government Update

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

Texas Board of Professional Geoscientists

The TBPG adopted three new rules/revisions during its November 18, 2005, meeting. At the time of writing this article these new/revised rules had not yet been published in the *Texas Register*. These new/revised rules deal with the registration of firms/corporations that practice public geoscience, geoscientist license renewals and temporary licensure. Once they have been published in the *Texas Register*, a period will be opened for public comment. The TBPG will review the comments to the new/revised rules at its March 17, 2006, meeting, which is supposed to take place in Houston.

Texas Commission on Environmental Quality

Texas Water Code §26.408 requires the TCEQ to notify owners of water wells that may be affected by groundwater contamination. In order to comply with this statute, guidance on submitting a Drinking Water Survey Report is now available to assist you in conducting the drinking water survey when necessary. Please refer to the TCEQ Web page at <http://www.tceq.state.tx.us/remediation/twc26.408.html> for more information.

The TCEQ Remediation Division has issued information addressing samples collected and shipped to laboratories in the upper Texas Gulf Coast area during Hurricane Rita. See the announcements Web page for details: <http://www.tceq.state.tx.us/remediation/announcements.html>.

If you have any questions regarding this notice, please contact Ann Strahl at 512-239-2500.

Texas Water Development Board

The TWDB adopted amendments to 31 TAC §§356.1-356.10 and new §§356.11-356.13, concerning Groundwater Management, Subchapter A, Groundwater Management Plan Certification. Sections 356.2, 356.5, 356.6, 356.8, 356.10, 356.12 and 356.13 are adopted with changes to the proposed text as published in the September 2, 2005, issue of the *Texas Register* (30 TexReg 5311). Sections 356.1, 356.3, 356.4, 356.7, 356.9 and 356.11 are adopted without changes and will not be republished.

These amendments and new sections were adopted to conform to the statutory changes of House Bill (HB) 1763, 79th Legislature, Regular Session (2005) and pursuant to the four-year rule review requirement of Texas Government Code, §2001.039. The statutory provisions affected by the amendments and new sections are Texas Water Code Chapters 16 and 36. For more information go to <http://www.sos.state.tx.us/texreg/sos/adopted/31.NATURAL%20RESOURCES%20AND%20CONSERVATION.html#124>.

RRC Energy Conservation Plan

In response to Executive Order RP-49, the Railroad Commission of Texas has reviewed its energy consumption and expenses and developed a plan that is designed to reduce its energy expenditures. The plan can be found at: <http://www.rrc.state.tx.us/energyplan/rrcenergyconplan.pdf>. Updates will be provided on the RRC's progress on a quarterly basis.

AGI Government Affairs Monthly Review (November 2005)

Hurricane Katrina: Hearings and Legislation Update

Over two months after Hurricane Katrina made landfall the disaster continues to be a major issue in Congress, with hearings being held every week to oversee the response to the disaster. Despite this interest, there has been little legislative activity directed at hurricane recovery beyond the \$64 billion in emergency appropriations passed in early September. Several bills have been introduced, in particular the Louisiana Recovery Corporation Act (H.R. 4100) and the Louisiana Katrina Reconstruction Act (S. 1765), but thus far none of the bills have made it out of committee. President Bush recently asked Congress to approve a package that would cut \$2.3 billion from federal programs and reallocate \$17 billion from Federal Emergency Management Agency's (FEMA's) Disaster Relief Fund in order to rebuild critical infrastructure in the affected areas, but no decision has been reached on this measure either. Of the \$64 billion appropriated for hurricane relief, \$19.58 has been obligated: \$7.15 billion has been spent on housing assistance, \$2 billion has gone to flood insurance claims, and \$1.45 billion is being used to rebuild infrastructure. Another \$615 million has gone to human services needs and \$86.5 million is committed to unemployment assistance. \$4.5 billion has been directly appropriated to the Army Corps of Engineers, of which \$4.1 billion has come from the Disaster Relief Fund and is being used for FEMA procurement, debris removal and logistical support. A small portion of the emergency appropriations will be directed toward dredging navigation systems (\$182 million) and restoring hurricane and flood protection (\$141 million). Based on this breakdown of the emergency appropriations, about \$35.704 billion of the \$64 billion has been directed to specific projects.

The hearings that have taken place over the past month that are relevant to the geosciences can be divided into two general categories: oversight into the role of federal, state and local government in preparing for and responding to Katrina and examination of plans for rebuilding New Orleans and other affected areas. The most prominent example of the first category was the October 19, 2005, appearance of Homeland Security Secretary Michael Chertoff

Government Update continued on page 45

Ellington & Associates, Inc.

www.ellingtongeologic.com

Geological, GeoChemical & Petroleum Engineering Services

- ◆ Paleo Preparation
- ◆ Sample Archiving
- ◆ Wellsite/Contract Paleontologists/Geologists
- ◆ Mud Logging Quality Control
- ◆ Fluid Inclusion Microscopy
- ◆ Headspace & Cutting Gas Analysis (C₁- C₆)
- ◆ Total Organic Carbon
- ◆ Custom Well Log Plotting using WinLog
- ◆ Log Digitization & Presentation
- ◆ Lithological Descriptions
- ◆ Petrographic Thin Sections

1022 Wirt Rd., Suite 312 ◆ Houston, TX 77055
Ph: (713) 956-2838 FX: (713) 956-2840 ◆ info@ellingtongeologic.com

Technology, Service and Experience Rolled Into One!

London
APPEX
AAPG PROSPECT & PROPERTY EXPO
6-9 March 2006



For attendee and exhibitor information, contact AAPG
Fax: 1 918 560 2684 • E-mail: appex@aapg.org
Web: <http://appex.aapg.org>

An American Association of Petroleum Geologists event



ENDORSED BY:



No Black Boxes... No Magical Logs...



Just Good Science.

Petrophysical Solutions, Inc.

Service Experience Trust

11767 Katy Frwy.,
Ste. 380
Houston TX 77079



Tel: 281-558-6066
Fax: 281-558-5783
www.psi-petro.com



PALEO

D A T A

NEW

COMPREHENSIVE GULF BASIN DEPOSYSYSTEM PROJECT

Arthur S. Waterman
Norman S. Vallette
Michael W. Center
Albert F. Porter, Jr.
William H. McKee
Joshua D. Miller
Thomas M. Reilly

by Richard H. Fillon, PhD. in
association with Paleo-Data, Inc.

wAge database of over 200,000 wells from
Onshore LA, TX, AL, MS, FL, and
Offshore GOM evaluated and
integrated in a unified framework.

wDeposystem maps of 60 sequences
from Jurassic to Recent for the
entire Gulf Basin.

6619 Fleur de Lis Dr.
New Orleans, LA 70124-1429
(504) 488-3711 (504) 488-6292 Fax
paleostaff@paleodata.com

www.paleodata.com

before the House Select Katrina Committee. Chertoff defended the placement of FEMA within the Department of Homeland Security (DHS), saying, "With DHS, FEMA has better resources." Chertoff's comments were in response to an earlier hearing with former FEMA Director Michael Brown, who said that DHS had "emaciated" FEMA. The Army Corps of Engineers is also experiencing a high level of congressional scrutiny, and the Senate Homeland Security and Government Affairs Committee held the first of several hearings on the failure of the New Orleans levee system on November 3, 2005. "These failures . . . were the result of human error and the delayed response to the collapse of the levee system," Chairwoman Susan Collins (R-ME) said as she opened the hearing, and that statement typified the criticism that many senators had for the Corps. New Orleans Mayor Ray Nagin also admitted to making mistakes, during a recent Senate Environment and Public Works Committee hearing, but senators treated Nagin with more deference than they did other officials involved with emergency response.

During the October 19, 2005, hearing Secretary Chertoff announced plans to create a new Directorate of Preparedness within DHS. These plans were part of the department's Second Stage Review, which was released a month before Katrina hit the Gulf Coast. The new directorate would combine several preexisting departmental offices, including the Office of Domestic Preparedness and the Infrastructure Protection Division, and would be headed by the Undersecretary for Preparedness. President Bush named Virginia Emergency Manager George Foresman to this new position on October 25, 2005. As part of the reorganization within DHS, FEMA will be restructured to focus solely on disaster response and recovery. In addition, the position of FEMA Director will be eliminated and FEMA will instead report directly to the Secretary of Homeland Security. While FEMA will not be officially located within the Directorate of Preparedness, Secretary Chertoff said the directorate would make use of the agency's expertise in emergency preparedness.

In addition to hearings focused on what went wrong before and after Katrina, members of Congress have also focused attention on what can be done right in rebuilding New Orleans and other areas. The House Transportation and Infrastructure Committee has been especially active in this area, holding three separate hearings to gather expert views on rebuilding New Orleans and protecting the city and its outlying communities from future hurricanes and floods. At one of these hearings two geoscientists, Denise Reed and Roy Dokka, testified, providing somewhat contradictory testimony about the value of wetlands restoration. Geologists also testified at a related House Resources Committee hearing on the Coastal Barriers Resources Act, which denies federal funding to new development in vulnerable coastal areas.

Expressing his view that the act needed to go further, geology professor Robert Young said, "It is time to cut our ties with the most vulnerable of our nation's coastal areas." A similar discussion occurred in a Senate Environment and Public Works Committee hearing on New Orleans water resources, where several witnesses opined that at-risk communities should be encouraged to relocate.

On November 17, 2005, the Senate Environment and Public Works Committee passed a bill that authorizes the Army Corps of Engineers to conduct a \$1 million assessment of infrastructure needs in southeast Louisiana and report back to the committee before January 15, 2006. The bill also directs the Corps to work with state authorities to design a Category 5 flood protection system within four months of that assessment. The bill seems to have stemmed from the frustration of several committee members, particularly Senator David Vitter (R-LA), that the Corps' planned forensic study of the levee failures would not be ready until June 1, 2006, which is the beginning of the next hurricane season. Several Corps officials have attempted to persuade Vitter and other senators that findings from the study would be incorporated into levee reconstruction before the official results were released. Vitter has maintained, however, that lawmakers and the public need access to these results much sooner. The Corps is currently planning to restore the levee system to its designed pre-Katrina protection levels, but officials have said they will upgrade the system to Category 5 protection if authorized to do so.

National Academies Report on Louisiana Coastal Restoration

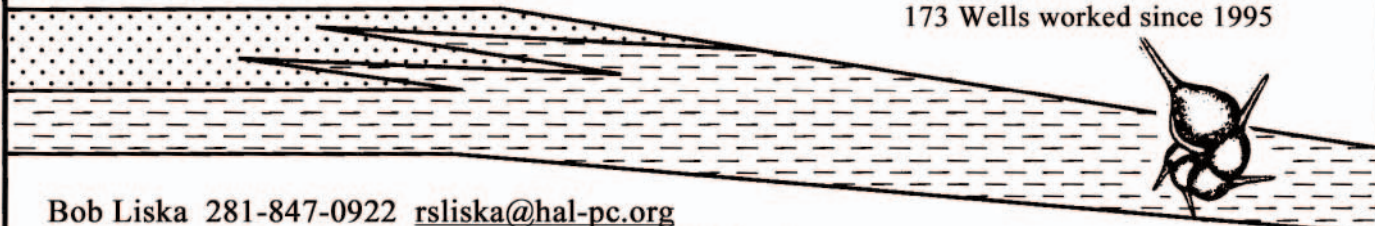
The National Academies has released an interim report on its study titled "Drawing Louisiana's New Map: Addressing Land Loss in Coastal Louisiana." The report reviews the scientific merit and long-term effectiveness of a restoration plan, the Louisiana Coastal Area (LCA), proposed by the Army Corps of Engineers and the state of Louisiana. The LCA would cost about \$1.9 billion over 10 years and is meant to slow and possibly reverse the loss rates of coastal lands. The interim report finds the projects within LCA scientifically sound, but not comprehensive enough for long-term effectiveness. The Committee on the Restoration and Protection of Coastal Louisiana recommends more and larger-scale projects to reduce land loss and to deal with hurricane protection and the rebuilding of communities devastated by hurricanes Katrina and Rita. For more information about the committee or the report please contact the National Academies' Ocean Studies Board at 202-334-2714 or visit <http://dels.nas.edu/osb>.

The full text of the interim report is available at: <http://www.nap.edu/catalog/11476.html>.

Government Update continued on page 47

Paleo Control, Inc
Drilling Wells - Databases

Wilcox
Correlated Paleo Data Base
173 Wells worked since 1995



Bob Liska 281-847-0922 rslliska@hal-pc.org
Jim Thorpe & Loyd Tuttle 713-849-0044 ltuttle@hal-pc.org



WORKING THE GULF OF MEXICO?



LET US ASSIST YOU

IN FEDERAL AND STATE WATERS

Regional Geological Structure Maps - Formation Tops - Base Maps

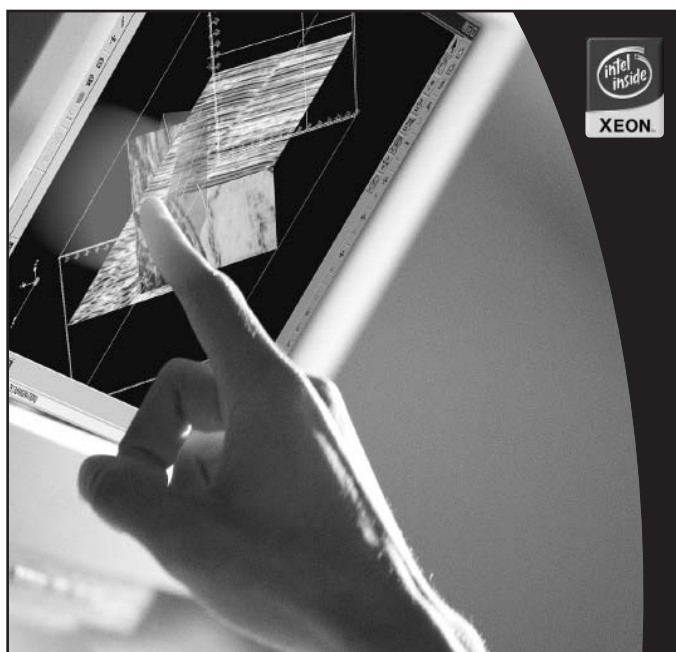
Production and Completion Information - Raster Logs - Paleo - Platform Information

Directional Surveys - Velocity Surveys - Bottom Hole Pressure Data - Pipelines - Leases

All data available for viewing or download from EDSmaps.com

Exploration Data Services - P.O. Box 1480 - Livingston, Texas 77351 - Phone: (936) 646-4639

Fax (936) 646-4284 email: expldata@eastex.net



3-D images so real you'll be amazed!

The cutting edge... Volume Pro enabled, real-time interactive 3-D visualization capabilities and the power of Intel® Xeon™ Processors. RCL Systems will configure the latest technology into your Geophysical Workstation to keep you in the pay zone.

Call us at 1-800-758-1771 or 281-240-2777
or visit us on the web at www.rcl.com

RCL
SYSTEMS

Intel and Intel Inside Logo are registered trademarks of Intel Corporation.

New Website

www.manzanitaservices.com

 **manzanita**

P.O. Box 941088 Houston, TX 77094 tel 281.560.3010 fax 281.855.6711
www.manzanitaservices.com

Evolution Roundup**Dover Case Closes and School Board Members Ousted**

The *Kitzmiller et al. vs. Dover* trial in Dover, Pennsylvania concluded on November 2, 2005. The case pitted 11 parents against the Dover school board. The parents objected to a statement read by school administrators before the beginning of biology classes, which stated that evolution is controversial and intelligent design is an acceptable alternative theory. The judge will announce his decision in January 2006 and although both sides have threatened to appeal, recent elections may negate further litigation.

On Tuesday, November 8, 2005, 8 of 9 Dover school board members, who supported teaching intelligent design as an alternative to evolution, were ousted in local elections. The new members all support the teaching of evolution without controversy and are less likely to appeal the judge's decision, should he agree with the 11 parents who brought the suit against the school district. This may mean the end of the controversy in Dover at least until the next elections. One of the new school board members, Bernadette Reinking, told the *New York Times*: "I think voters were tired of the trial, they were tired of intelligent design, they were tired of everything that this school board brought about."

Kansas Alters Definition of Science

The Kansas Board of Education voted 6 to 4 on November 8, 2005, to accept changes to the science standards that alter the definition of science and emphasizes controversies about the theory of evolution. The modified definition allows supernatural explanations to be included in science teaching. Following the decision board members spoke out about the new standards. "This is a sad day. We're becoming a laughing stock of not only the nation, but of the world, and I hate that," said board member Janet Waugh, a Democrat. Supporters, however, claim the new standards will promote academic freedom. "It gets rid of a lot of dogma that's being taught in the classroom today," said Republican board member John Bacon.

In response to the Board's decision, Kansas Governor Kathleen Sebelius issued a statement indicating her disapproval of the changed standards. "This is just the latest in a series of troubling decisions by the Board of Education. If we're going to continue to bring high-tech jobs to Kansas and move our state forward, we need to strengthen science standards, not weaken them," she said.

The decision marks the third time in six years that Kansas has changed its science standards because of the issue of evolution. Intelligent design advocates continue to find support for their cause in Kansas. A recent statewide poll by the media suggested a slight majority of Kansans favored teaching intelligent design. In addition, opponents of evolution sit on many local school

boards, including Kent Swartz, a banker and creationist who serves on the South Barber County school board southwest of Wichita and said in a statement to CNN, "I want you to respect my side, and I will respect your side."

Teaching Evolution and Creationism in College

A paper published in the November issue of *Bioscience* suggests that teaching evolution and intelligent design in college-level biology classes may be effective in helping students differentiate science from nonscience. In 2003, 103 freshman biology majors at Central Washington University were divided into four sections. Two sections were taught about the arguments for evolution and intelligent design (ID) while two other sections were only taught about the arguments for evolution. At the end of the semester, 66 students completed a questionnaire about their beliefs before and after the course. Six belief choices were given on the questionnaire, ranging from biblical literalism to atheistic evolutionism. The results indicated that 61% of students exposed to evolution and ID changed their beliefs compared to only 21% of students exposed only to evolution. The majority of the 61% shifted toward evolution and away from ID.

According to biologist Steven Verhey, the study's author and teacher of two of the sections, the key is recognizing that nearly all American adults have been exposed to information about creationism and evolution. About 70% of Verhey's students said they had learned about creationism and evolution before entering the class. "Basic educational theory says you can't expect people to change their attitudes without acknowledging their prior learning," Verhey stated in a university press release. "Most of these students were initially sympathetic to creationist explanations and moved toward greater acceptance of evolution," he added.

An editorial accompanying the study by Indiana University biologist Craig Nelson did not endorse trying to teach evolution and ID at the high school level because teachers are not trained to teach the differences. In fact, one potential flaw in this study is that Steven Verhey taught the two sections that included evolution and ID while another biology professor taught the other two sections. Differences in teaching style may have contributed to the different results among the groups, although the biologists tried to control for this factor. Nelson concludes that effective teaching is the key to eliminating confusion about science and evolution.

The full text of the editorial is available at http://www.aibs.org/bioscience-editorials/editorial_2005_11.html.

PEL-TEX OIL COMPANY, L.L.C.

Exploring The Gulf Coast – 46 years



Historically PEL-TEX'S track record exhibits it to be a
GENERATOR of Large GAS EXPLORATORY
PROSPECTIVE OPPORTUNITIES both
ONSHORE and OFFSHORE of the
LOUISIANA and TEXAS GULF COAST

"Nothing has changed," DEEP GAS is Pel-Tex's main focus
Pel-Tex is privately owned and welcomes interested partners

HOUSTON, TX
520 Post Oak Blvd., Suite 475
Houston, Texas, 77027
713-439-1530

Contact:
Earl P. Burke, Jr. Ch. & CEO
Glenn Burke, President
Brian Burke, Vice President



Preston Exploration L.L.C.

1717 Woodstead Court, Suite 207
The Woodlands, Texas 77380

Internally funded, privately-held exploration company is
seeking high potential (30+ BCF or 4+ MMBO) exploration
prospects both onshore and in inland state waters for the
following areas: South Louisiana, Texas Gulf Coast, South
Texas, and East Texas. Will consider prospects that are ready
to drill or at the idea level. Operations are preferred, but,
non-operated interest with acceptable operator will be
considered.

CONTACT:

Joe Eubanks or Jim Abney at
Tel: (281) 367-8697 Fax: (281) 364-4919

Tauber Exploration & Production Co.

Seeking Ready to Drill Prospects

Texas and Louisiana Gulf Coast

Contact: Tim Tade or David Voight

(O) 713-869-5656 (F) 713-869-1997

55 Waugh Drive, Suite 601 • Houston, Texas 77007

Daniel C. Huston
Holly Hunter Huston



HUNTER 3-D, Inc.

3-D Seismic Interpretation, Gravity/Magnetics,
Hampson/Russell Inversion / AVO analysis.

Celebrating our 10th Year !

6001 Savoy, Suite 110 • Houston, TX 77036
(713) 981-4650

E-mail: hunter3d@wt.net
Website: www.hunter3dinc.com



Kevin J. McMichael

First City Tower
1001 Fannin, Suite 777
Houston, TX 77002
713-655-9700
Fax 713-655-9709
kmc michael@claymoreexpl.com



Contract and Full Time Exploration and Production Staff
Geoscience, Management, Reservoir Engineers, Landmen,
Information Technology, Production

We can provide you with the RIGHT people with the RIGHT skills and
the RIGHT experience at the RIGHT price, time and location!

Why spend all your scarce management time looking for staff when we
can do it for you? Founded in 1999, GeoExperts is staffed and led by E&P
professionals with decades of experience in the worldwide oil industry

Tel: 713-953-0823, ext. 13, Fax: 713-2953-1642
(we also have offices in Canada, London and West Africa)
www.geoexperts.com

Google Digitizing the Library of Congress

On November 22, 2005, the Library of Congress announced a new initiative to create a World Digital Library (WDL). The WDL would consist of a freely accessible online collection of rare books, manuscripts, maps, posters, stamps and other materials held by the Library of Congress and other national libraries from Europe, the Middle East, Asia and Africa. The Library of Congress has accepted \$3 million from Google Inc., as the first contribution of a public-private partnership to support WDL. Google has already digitized 5,000 books from the Library of Congress in a pilot project to refine their abilities to handle fragile materials. Google will only digitize materials that are in the public domain. According to the Allan Adler, vice president for legal and government affairs at the Association of American Publishers, there is unlikely to be any controversy over copyright because the U.S. Copyright Office is housed in the Library of Congress and should serve as a consultant about any copyright issues.

From the *Federal Register*

Below is a summary of *Federal Register* announcements regarding federal regulations, agency meetings, and other notices of interest to the geosciences community. The Federal Register is available online at

http://www.access.gpo.gov/su_docs/fedreg/frcont05.html.

Department of Energy: The DOE has reopened the scoping period for an environmental impact statement regarding site selection and expansion of the Strategic Petroleum Reserve in the Gulf Coast Region. This extension is due to a request by the Governor of Mississippi that DOE include a new site at Bruinsburg Salt Dome in its analysis. [*Federal Register*: November 22, 2005 (Volume 70, Number 224)]

Working for America's Energy Future

continued from page 39

November 2000. No Atlantic lease sales have been held since 1983. The last exploratory well was drilled in 1984.

The MMS Gulf of Mexico OCS Region Office's role in all this activity is substantial. By law, the MMS must approve every exploration well, every production proposal and the structural design of every platform as well as every pipeline, and it must issue literally dozens of other approvals for the design and operation of facilities and measurement of product. It conducts extensive environmental review of proposed projects. MMS also conducts thousands of inspections every year to ensure operational safety and protection of the marine, coastal and human environment.

These immense tasks are the responsibilities of the 600 employees in the MMS Gulf Region Office and require their professional training in a host of disciplines. To accomplish this mission, we employ petroleum engineers, geophysicists, geologists, marine biologists, oceanographers, other environmental scientists, offshore inspectors and computer personnel among other professionals.

The Gulf of Mexico OCS Region (GOMR) is one of three regional offices of the Minerals Management Service (MMS), an agency that manages more than a billion offshore acres and collects about \$10 billion dollars in mineral revenues annually. From the days of its predecessor agencies and the creation of MMS in 1982, the program has overseen, through 2000, the production of more than 10.9 billion barrels of domestic oil and 133 trillion cubic feet of gas from under the ocean floor; 97% which comes from the Gulf of Mexico. OCS leases currently supply a quarter of the U.S. production of natural gas and oil, a significant contribution to our nation's economic strength and national security. It is estimated that over 55,000 petroleum-related workers are employed in the Gulf of Mexico offshore industry. ■

<http://www.gomr.mms.gov/homepg/whoismms/regdir.html>

more information is at

<http://www.gomr.mms.gov/homepg/new/new.html>

See related article "Gulf of Mexico Region Details Deepwater Discoveries to Date in 2005" on page 57.

The Ozone Hole — A Crisis Averted?

by **Bill Rizer**, Editor-elect

As geologists we are often asked by friends or relatives to explain some earth-related topic or issue that has been on the news or in the science section of the local newspaper. One example that comes to mind and seems to reappear every so often is the ozone hole. Most of us know that ozone (O_3) is a somehow important constituent of our atmosphere and that recently scientists have noted a worrisome “hole” in the ozone layer over Antarctica. However, if you are like me, that is pretty much all that you know. This article represents my attempt at gaining some small degree of understanding, sufficient to enable me to provide a somewhat reasonable explanation when I am asked to comment on the ozone layer and why it is important. In the course of this brief investigation, a story emerged that is at once scientifically engaging and emotionally encouraging because it illustrates how a potentially disastrous man-made environmental crisis can be averted when a responsible society takes appropriate action based on information provided by a watchful scientific community.

Most of us are familiar with the ozone watches and alerts that we hear on the radio, usually during those hot sultry days in the summer when there is little wind. Near the surface, ozone is a potent toxin that forms when nitrogen oxide gases from vehicle and industrial emissions react with volatile organic compounds (paint thinners and other carbon-containing chemicals that evaporate easily into the air). In the troposphere, that part of the atmosphere near the Earth's surface, the natural concentration of ozone is about 10 parts per billion (ppb) which is 0.00001%. According to the Environmental Protection Agency, exposure to ozone levels greater than 80 ppb for 8 hours or longer is unhealthy (NASA, 2000). Such concentrations occur in or near cities during periods when the atmosphere is warm and stable. The harmful effects can include throat and lung irritation or aggravation of asthma or emphysema.

Fortunately for us, most atmospheric ozone is found in the stratosphere, the region of the atmosphere between about 10 and 50 km (32,000 -164,000 ft) where ultraviolet radiation is very high (Figure 1). Ozone is created when extreme ultraviolet radiation from the sun breaks an oxygen (O_2) molecule into two free oxygen atoms. These then combine either with each other to form O_2 or with O_2 to form ozone (NASA, 2000). In general, ozone concentrations are low, a few molecules per million, even in the stratosphere. The peak concentration of ozone occurs at an altitude of roughly 32 km (20 miles) above the surface of the Earth. At that altitude, ozone concentration can be as high as 15,000 ppb (0.0015%). The standard measure for ozone is the Dobson Unit (DU).

One Dobson Unit is the number of molecules of ozone that would be required to create a layer of pure ozone 0.01 millimeters thick at a temperature of 0°C and a pressure of 1 atmosphere (the air pressure at the surface of the Earth).

A vertical profile (Figure 1) of O_3 concentration with altitude shows that most of the ozone is found from 10-30 km. Despite its low concentration, this ozone layer is critical for life on earth as we know it. Stratospheric ozone absorbs all of the UV-c, most of the UV-b, and about half of the UV-a sunlight radiation incident on the atmosphere and prevents it from reaching the surface. Exposure to the highly energetic UV-c, and/or an increase in exposure to UV-b and to a lesser extent UV-a can lead to increased incidence of skin cancer, and can cause damage to our immune systems, marine organisms, and sensitive crops.

Normally, stratospheric ozone is produced and destroyed at a fairly constant rate, that is until modern society altered that balance by producing increasing levels of CFCs (chlorofluorocarbons). CFCs, found in older refrigerants, fire extinguishers, and certain solvents, reach into all levels of the stratosphere and decompose into ozone-depleting gases such as chlorine (Cl_2) and bromine (Br_2). One Cl_2 or Br_2 molecule can destroy 105 molecules of O_3 . Human activity contributes 82% of ozone-depleting chlorine to the atmosphere; explosive volcanic eruptions contribute only 3%.

The Ozone Hole

Farman et al. (1985) surprised atmospheric scientists when they announced a rapid decrease of 50% in total ozone that occurred over Halley Bay, Antarctica, each year over the period from 1975 to 1984, reaching the lowest annual values in early October. Furthermore, they found that spring total ozone values had decreased from 300+ DU in the late 1950s and early 1960s to around 200 DU in

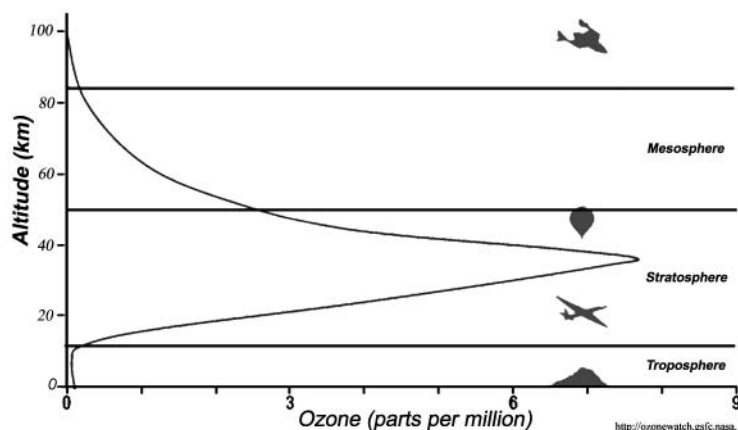


Figure 1. Ozone concentration profile. Modified after NASA 2000.

the early 1980s. Prior to this discovery, many scientists had recognized an annual variation in ozone levels over Antarctica, but had not observed the dramatic annual decrease in total ozone over such a short time in early spring or the steady annual decline in total ozone that had been occurring since the late 1950s. Subsequent analyses of records dating back to the 1950s along with newer satellite data using the Total Ozone Mapping Spectrometer (TOMS) confirmed the Farman, et al. (1985) findings and demonstrated that the region of severe ozone depletion covered essentially the entire continent of Antarctica (Figure 2).

Each year the ozone hole develops in August and reaches a maximum in late September or early October before shrinking and disappearing in November or December. In a period of only a few weeks, the total amount of ozone can decrease by up to 50%, from 300 DU to 200 DU or less. The term ozone hole is defined as the area within which total ozone is 200 DU or less. Analysis of the historical data indicate a dramatic increase in the size of the ozone hole from the late 1970s to the present (Figure 3).

The largest Antarctic ozone hole measured to date occurred in 1998, and averaged 10.1 million square miles (Solomon, et al. 2005). This year's ozone hole measured 9.4 million square miles at its peak between September and mid-October, slightly larger than in 2004. For 10 of the past 12 years, the Antarctic ozone hole has been larger than 7.7 million square miles. Before 1985, it measured less than 4 million square miles (NASA, 2005).

Causes of the Ozone Hole

The Antarctic ozone hole is primarily the result of destruction of stratospheric ozone by increasing levels of man-made chlorine and bromine combined with the particular meteorological conditions that prevail over Antarctica in the early spring of the

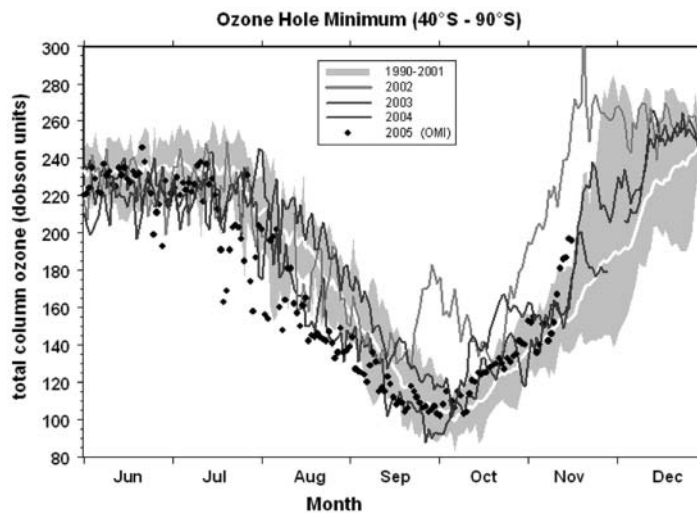


Figure 2. Total column ozone variation by month. Modified after NASA, 2000.

southern hemisphere. Those conditions include the particularly cold Antarctic winter that causes the development of polar stratospheric clouds (PSCs). Various forms of chlorine and bromine that normally do not affect ozone react at the base of those clouds to produce chlorine and bromine products that do destroy ozone. These reactions are so fast that in only a few weeks in early spring essentially all of the ozone over Antarctica in the stratosphere between about 12 and 20 km is destroyed (NASA, 2000).

Similar depletions occur in the polar regions of the northern hemisphere during the early spring, with severe losses of ozone measured over the past several years. Ozone depletion does not result in as large or well-defined an area in the Arctic as it does in the southern polar regions due to differences in the meteorological conditions. However, ozone depletion in the Arctic is even more worrisome because it can affect population centers like northern Europe. Fortunately, Arctic temperatures have been somewhat warmer in recent years, inhibiting the extreme ozone losses seen in the Antarctic.

World Response

Discovery of the ozone hole in the mid-1980s raised considerable concern and resulted in an unusually (in my opinion) rapid response. International discussions were held almost immediately resulting in the landmark Montreal Protocol (on Substances that Deplete the Ozone Layer), adopted by the United Nations in September 1987. This treaty, which closely regulates the production and use of chemicals known to deplete stratospheric ozone, was ratified by 26 nations in 1987 and by nearly all member nations over the next several years. Amendments to the treaty listing more dangerous chemicals were adopted in subsequent years as more data came in. Ratification of the amendments has lagged behind somewhat. The United States has ratified the treaty and all of the amendments. **The Ozone Hole** continued on page 52

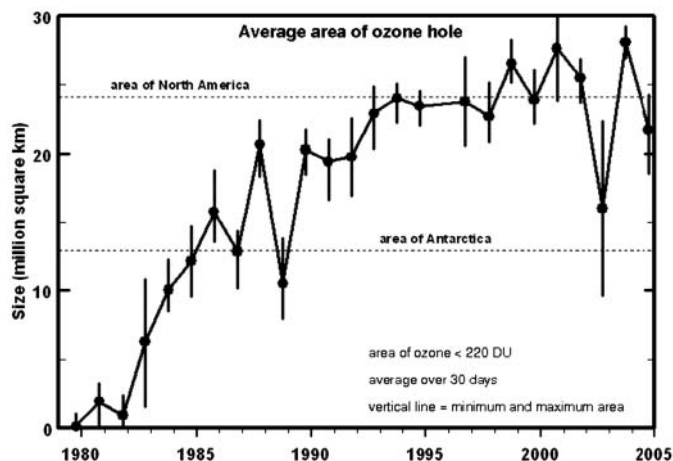


Figure 3. Increase in ozone hole area from 1980 to 2005. Modified after NASA, 2000.

The Ozone Hole continued from page 51

Prospects for Recovery

The Montreal Protocol and its amendments have led to a curtailment of CFC production around the world. CFC concentrations have been slowly decreasing in the troposphere. Stratospheric CFC concentrations lag tropospheric CFC concentrations by a few years, but are also expected to decrease within the next few years. As these chlorine and bromine concentrations start to decrease, Antarctic and Arctic ozone amounts should begin to recover, although complete recovery is not expected until 2050 give-or-take 15 years.

Recent research on the effects of greenhouse gases on cooling the polar regions has caused some renewed concern about the ozone hole. This is because greenhouse gases, principally carbon dioxide, actually cause cooling in the stratosphere even as they warm the troposphere (Bryden and Robertson, 2003). If so, this cooling may exacerbate polar ozone losses in spite of decreasing chlorine and bromine levels. New evidence that reservoirs of ozone-depleting chemicals in developing countries may be larger than expected may also delay full recovery. Nevertheless, the speed with which scientists identified the crisis, its causes, and its solutions, and informed the national governments; and the speed at which the world community acted to correct the problem is heartening.

The ozone hole crisis and how we have responded demonstrates how an engaged scientific community, working in concert with an aware society and responsive governments can address and even solve environmental crises. Last Fall, the HGS sponsored a conference on subsidence along the Texas and Louisiana coast. The issues addressed, and some of the conclusions reached, are described in an article by Berman in the November 2005 HGS *Bulletin* and were even covered in a series of articles in the *Houston Chronicle*. Perhaps in the ozone hole and subsidence issues we are beginning to see the kind of efforts necessary to solve the larger environmental issues such as global warming.

More details of this and many other concepts related to ozone depletion and other environmental issues are readily available at the NASA Educational Web site, <http://www.ccpo.odu.edu/SEES/index.html>.

Global warming and its natural and man-made causes were addressed in an article by Bryden and Robertson, in the December 2003 issue of the HGS *Bulletin*. ■

References

Berman, Arthur: 2005, The Debate Over Subsidence in Coastal Louisiana and Texas, HGS *Bulletin*, November.

Bryden, I. G. and K. J. Robertson, 2003: Global Climate Change - The

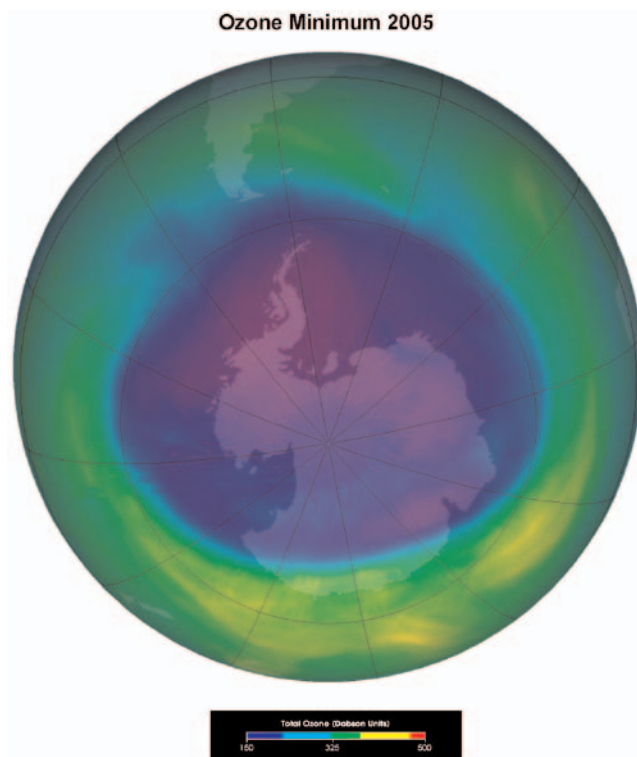


Figure 4. The Antarctic ozone hole, 2005. Modified after NASA, 2000.

Conflicting Arguments, HGS *Bulletin*, Vol. 46, No. 4, pp 37-49.

Farman, J.C., B.G. Gardiner, and J. D. Shankin, 1985: Large losses of total ozone in Antarctica reveal ClO_x/NO_x interaction. *Nature*, V. 315, pp. 207-210.

NASA, 2000: Studying Earth's Environment From Space. June 2000. (accessed December, 2005 - January, 2006). <http://www.ccpo.odu.edu/SEES/index.html>.

NASA, 2005: NASA's Aura Satellite Peers Into Earth's Ozone Hole, Feature article, 12.07.05, http://www.nasa.gov/vision/earth/lookingatearth/ozone_five.html.

Newman, Paul A., S. Randolph Kawa, and Eric R. Nash, 2004: On the size of the Antarctic ozone hole, *Geophysical Research Letters*, Vol. 31, L21104, doi:10.1029/2004GL020596, 2004.

Solomon, S., R.R. Garcia, F.S. Rowland, and D.J. Wuebbles, 1986: On the depletion of Antarctic ozone. *Nature*, V. 321, pp. 755-758.

Solomon, Susan, Robert W. Portmann, Toru Sasaki, David J. Hofmann, and David W. J. Thompson, 2005: Four decades of ozonesonde measurements over Antarctica, *Journal Of Geophysical Research*, Vol. 110, D21311, doi:10.1029/2005JD005917.



What is the best or easiest way to capture information from a Web page?

Ask a scientist almost any question, and he will probably say, “It depends.” It depends on what you want to copy from the Web and how you want to use it.

I will go through several ways to do this over the next few months but this month I want to focus on the most basic approach.

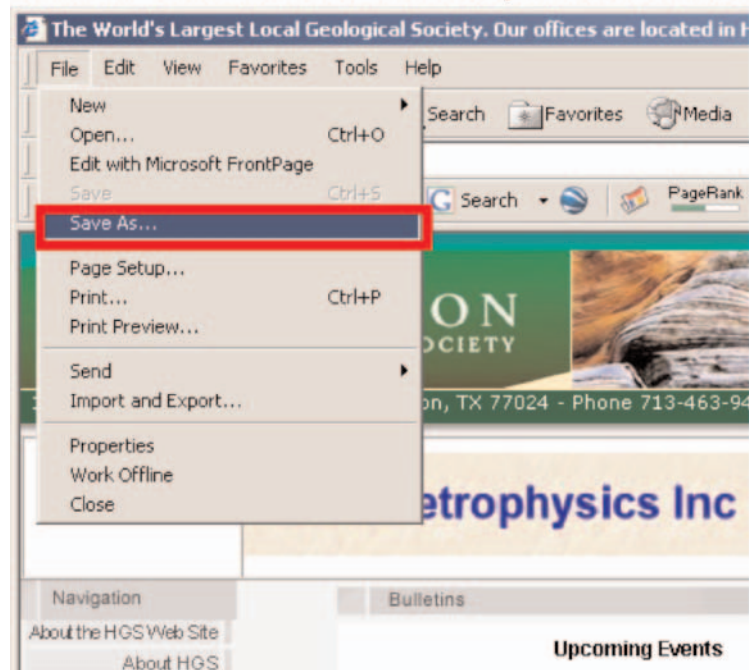
Copying a Web Page to Send as an E-mail Attachment

Most people know that if you copy the address of the Web page or URL (uniform resource locator) and paste it into the body of your e-mail, the person who receives the e-mail can either click on the url and directly launch the Web page from which it came, or can copy and paste the url into the address area of his/her Web browser, hit enter and get there that way. I think that there is an easier and more effective way to do this that also gives you and the recipient a record and retrievable copy of the Web page.

Here’s how I recommend saving a Web page:

1. Go “File” on the toolbar of your browser.
2. Select “Save As” from the “File” pull-down menu.
3. When the “Save Web Page” dialog box appears, in the “Save As Type” box, select “Web Page, HTML only (*.htm, *.html)”. Give the file a name and select a location to save it. Click “Save”.

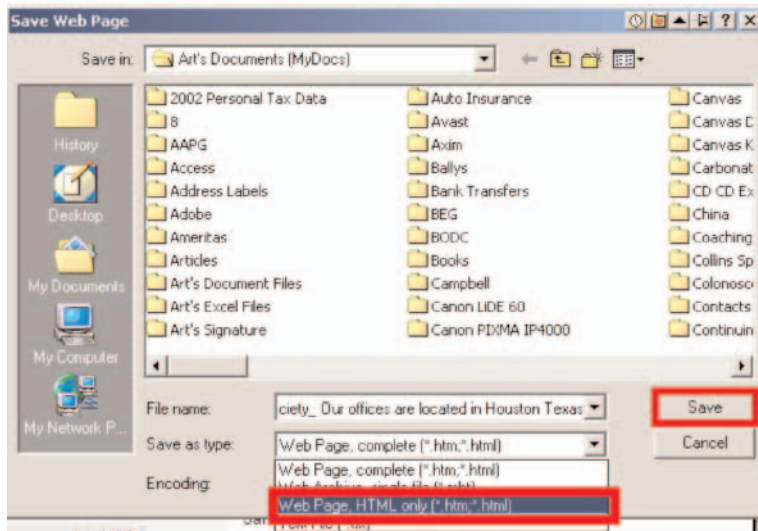
1. Go the “File” on the toolbar of your browser.
2. Select “Save As” from the file pull-down menu



Webnotes continued on page 54

3. When the "Save Web Page" dialog box appears, in the "Save As Type" box, select "Web Page, HTML only (*.htm, *.html)".

Give the file a name and select a location to save it. Click "Save".

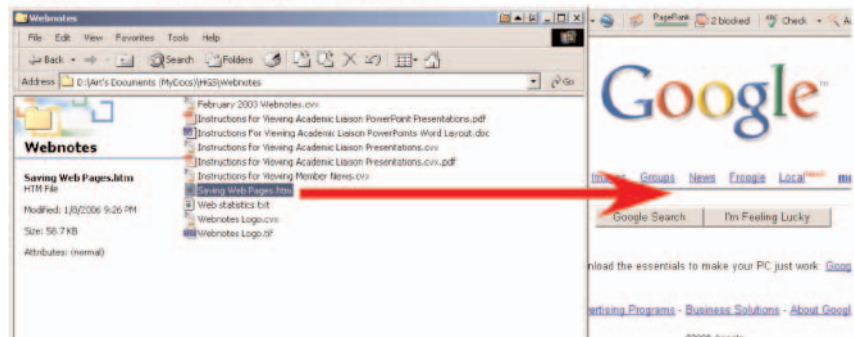


When you send your e-mail, attach this file just as you would a Word document or any other file attachment. The recipient can double-click the file's icon and their Web browser will launch and open the file as a Web page.

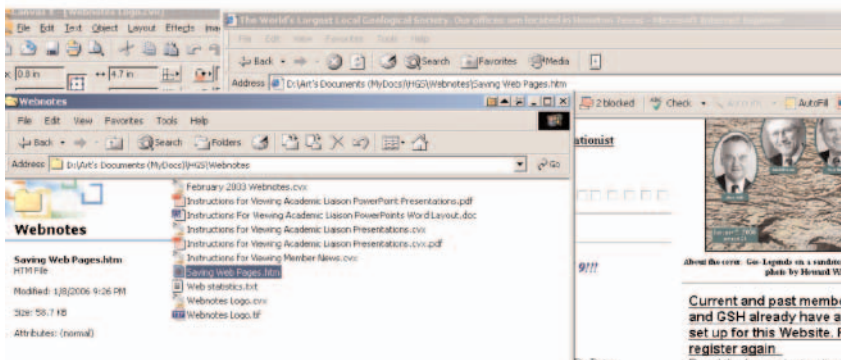
If you locate files saved as HTML, you can simply drag them from an open directory and drop them on an open page in your Web browser and the Web page will open.

Magic! More about copying Web pages next month. ■

Locate the HTML file in an open directory and have a window in your Web browser open.



Drag and drop the file onto your Web browser and the Web page will open!





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.

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

Mail this application and payment to:

Houston Geological Society
10575 Katy Freeway, Suite 290
Houston, TX 77024

Telephone: 713-463-9476 Fax: 713-463-9160

Payment method:

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

Card # _____ Expiration Date: _____

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

Name: _____

Address: _____

Home Phone: _____ Spouse's Name: _____

Email: _____

Job Title: _____

Company: _____

Company Address: _____

Work Phone: _____ Fax Number: _____

Circle Preferred Mailing Address: Home Office

Professional Affiliations:

☐ Active AAPG Others: _____

Professional Interest:

☐ Environmental Geology

☐ International E&P

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

☐ Gulf Coast E&P (onshore & offshore)

Membership Directory

Preference

☐ CD Rom

☐ Printed

School _____

Degree _____ Major _____ Year _____

School _____

Degree _____ Major _____ Year _____

School _____

Degree _____ Major _____ Year _____

Earth Science Work Experience _____

Applicant's Signature _____ Date _____

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

Name: _____

Signature _____ Date _____

Membership Chairman _____ HGS Secretary _____

HGA and GeoWives News

HGA

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

After a quiet January, the Auxiliary is in full swing for the spring, paralleling most of our personal lives. On that personal side, our youngest son recently joined the oil biz'nes and his enthusiasm brought back a flood of memories of Dick's and my excitement when we started our careers, thrilled at being part of such an exciting and fascinating industry, filled with so many wonderful people. That excitement is still part of our lives after these many years.

Speaking of interesting times and wonderful people, Daisy Wood will be hosting auxiliary members and their guests at the ever-successful Game Day at the Junior League Tea Room on Monday February 13th from 10:00 a.m. to 2:00p.m. This outstanding event was the brainchild of Gwen Caussey and Daisy has added her own special touches that are the hallmarks of her style. Members may want to attend on their own or, if they wish, they may bring guests to make up their own table. The most popular games include Bridge and Chicken Foot with the addition of new games every year. A delightful luncheon and an abundance of door prizes add to an afternoon of fun that shouldn't be missed. Interested Society members and their spouses may contact Daisy about attending.

Looking ahead to March, Chair Sally Blackhall and her committee are preparing another event that you will want to add to your schedule. On Sunday, March 26th a Bus Trip to Galveston is being planned to view "Thoroughly Modern Millie" at the Grand Theater. Box lunches, wine and beverages will be provided on the bus along with a chance to visit and catch-up with old friends. There will be limited seating of 54 for this event so reserve early!

On the business side, at the Winter Auxiliary Board Meeting an ad hoc committee was approved to research further the possibility of expanding cooperation between the Houston Geological Auxiliary, the Geophysical Auxiliary and the Women's Auxiliary to the Houston Area Petroleum Landmen. Winona LaBrant Smith was nominated and approved by the board to head this committee. This is an important step in providing better programs and services for our members and respective societies while still maintaining each organization's autonomy. With her past professional experience in the oil industry and receptive nature, Winona will be a perfect chair for this important endeavor.

"See you at something-HGS"

GeoWives

The GeoWives have been having some fun and interesting luncheons but are not planning a meeting in February, as we want to support the HGA Game Day on February 13 at the Junior League. You will be receiving an invitation to this event, so send in your reservation and plan to join us there for a delicious luncheon and a day of fun with our friends.

We feel sad to report to you the death of our dear member Treva Maxwell on December 12. Treva was known by all as a vivacious, outgoing person who radiated a friendly attitude of love toward everyone she met. She served on the telephone committee for GeoWives and will be greatly missed by our group.

We offer our condolences to Treva's loving husband, Eugene L. "Gene" Maxwell, and his family on their great loss of this lovely lady.

Please mark your calendars for March 16, 2006, to join us on our annual field day trip with Martha Lou Broussard. Due to Hurricane Rita, we will not be going to Orange, Texas, as scheduled, but be watching for news on the new trip that she is planning for us. This is always a special event that you won't want to miss. ■

You are invited to become a member of Houston Geological Auxiliary 2005–2006 dues are \$20.00

make check payable to *Houston Geological Auxiliary* and mail to: **Norma Jean Jones** • 14302 Appletree • Houston, Texas 77079

HGA YEARBOOK INFORMATION

Last Name	First Name	Name Tag
Spouse Name	Name Tag	HGS Members Company
Home Phone ()	Business Phone ()	Business Fax ()
Street Address	City	Zip
Birthday, Month, Day ONLY	Email Address	Home Fax ()

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: _____

Street Address: _____

City/State/Zip: _____

Telephone: _____

email: _____

I will help plan a GeoWives activity ☐

I will serve on a committee ☐

Notification / Phone Committee ☐

Courtesy / Hostess ☐

My home is available for a meeting ☐

Gulf of Mexico Region Details Deepwater Discoveries to Date in 2005

The Minerals Management Service announced that there were nine deepwater (greater than 1,000 feet) oil and gas discoveries announced by operators and lessees in the Gulf of Mexico in 2005, as of November 30, 2005.

"The deepwater discoveries to date represent a strong continuing success story in the Gulf of Mexico," stated Chris Oynes, MMS Regional Director for the Gulf of Mexico. "Discoveries like BP's Stones represent a continuing favorable development in the new Paleogene play in the Walker Ridge area."

MMS reports that, in the week ending December 2, there were nine rigs drilling in 5,000 feet of water or greater — the ultra deepwater zone. This compares with seven in the same period one year ago.

MMS also notes that Chevron/Unocal had reached a new drilling record in the Gulf of Mexico — 32,968 feet drilling depth at its Knotty Head prospect in Green Canyon Block 512. This broke the old record set by Shell of 32,727 feet.

The announced deepwater discoveries thus far in 2005 demonstrate that active exploration in the deepwater Gulf of Mexico will continue to help America meet her energy needs. ■

Professional Directory

SED-STRAT Geoscience Consultants, Inc
Play Concepts, Stratigraphic Traps, Clastic Sequence and Seismic Stratigraphy, Clastic Reservoirs, Basin Analysis.

George D. Klein, PhD
TX Registered Geologist #440
AAPG-DPA Certified Petroleum Geologist #5662
17424 W. Grand Pkwy; Suite 127 (281) 937-9436
Sugar Land, TX, USA, 77479-2564 FAX: (281) 937-9456
E-mail: gdkgeo@earthlink.net

Integrated Interpretations 2D/3D
Domestic and International

Charles "Chuck" Gartmann
Consulting Geophysicist

1065 FM 949 Sealy, Texas 77474
Office: 979-885-4528
email: gart@industryinet.com



SIPES
Houston Chapter

Society of Independent Professional Earth Scientists

Certification for Oil & Gas Independents
Cutting edge technical & industry related presentations
Network with Prospect and Production Buyers and Sellers
www.sipes-houston.org or 713 651-1639 for info

PCI **LOYD TUTTLE**
PALEO CONTROL, INC.
MICROPALAEONTOLOGY PALEOECOLOGY

P.O. BOX 41751
HOUSTON, TEXAS 77241-1751
OFFICE 713-849-0044 RESIDENCE 713-466-7922



John Burton
Executive Director

3300 South Gessner #120
Houston, Texas 77063
U.S.A.: 713-953-0823 ext. 13
Fax: 713-953-1642
Cell: 832-647-7356
E-mail: jpsbgeol@aol.com

J.H. HOWARD, PH.D., FGSA

CERTIFIED PETROLEUM GEOLOGIST, AAPG
REGISTERED GEOLOGIST, CALIFORNIA
SR. MBR., SOC. FOR TECHNICAL COMMUNICATION

+
STRUCTGEOL@CS.COM
713-253-9800

CRAIG W. TILLEY P.G.
LICENSED PROFESSIONAL GEOSCIENTIST

SIPES #2008 AAPG CPG #2713 TEXAS LPG #146

www.ctilley.com

7514 Marinette
Houston, TX 77074
cwtilt@sbeglobal.net

Office: 713 774-5592
Cellular: 713 305-0349
Home: 713 995-9119

1390 Main Street
Post Office Box 81
Montara CA 94037-0081

650.728.3373
Facsimile and E-mail:
by request

VICTOR H. ABADIE III
CONSULTING GEOLOGIST

CERTIFIED PETROLEUM GEOLOGIST, AAPG, NO. 3936
SOCIETY OF INDEPENDENT PROFESSIONAL EARTH SCIENTISTS, NO. 2085
CALIFORNIA REGISTERED GEOLOGIST, LIC. NO. 4040
TEXAS REGISTERED GEOLOGIST, LIC. NO. 1843



New Century Exploration, Inc.

17350 Tomball Parkway, Suite 300
Houston, Texas 77064
Office: 281 664-7000
Cell: 713 857-0119
Fax: 888 317-9122
philmartin@newcenturyexp.com

Phil Martin



Decker Operating Company, L.L.C.

Steve H. Hill
Exploration Manager

1706 Seamist
Suite 590
Houston, Texas 77008
STEVE.HILL@LSDECKER.COM

713-880-4343 office
713-880-1553 fax
713-248-3634 cell

PCI

BOB LISKA
PALEO CONTROL, INC.

WILCOX & Lower Tertiary BIOSTRATIGRAPHY



7706 Green Lawn Drive, Houston TX 77088
Ph 281-847-0922 rsliska@hal-pc.org

**Place Your
Business Card Here!**
\$125.00 for 10 issues
713-463-9476

ROGER MORTON GEOPHYSICAL CONSULTANT

SEISMIC INTERPRETATION
DOMESTIC/FOREIGN/2D/3D

PROFESSIONAL REAL ESTATE INSPECTOR

TREC #5133

RESIDENTIAL/COMMERCIAL
NEW/OLD

OFFICE: (281) 370-3770 CELL: (281) 221-3419
FAX: (281) 370-4369 E-mail: inspectorm@aol.com
www.roger-morton.com



GeoCenter, Inc.

16800 Greenspoint Park Drive • Suite 100S
Houston, Texas 77060-2300

Sales

Reed Haythorne
Norm Stager
Dave Spaulding
William Zepeda

Seismic Data Processing **SeisUP[®] Systems**
Telephone (281) 443-8150 Fax (281) 443-8010
sales@GeoCenter.com

Nortex Corporation

Established in 1957

Robert W. Kent
Executive Vice President
Land and Acquisitions

1415 Louisiana Street
Suite 3100
Houston, Texas 77002

Bus: 713-658-1142 x311
Fax: 713-658-0739
Email: rwkent@aol.com

EXTERRA GeoScience Ltd.

Dipmeter and Borehole Imaging Specialists

Eric F. Paauwe

One Cornerstone Plaza
3845 FM 1960 W Suite 305
Houston, TX 77068

Ph. 832-484-9200
Fax. 832-484-9201
eric@exterraltld.com

JAMES M. NORRIS CERTIFIED PETROLEUM GEOLOGIST



Field Studies/Field Value Enhancement
Property Purchase Evaluations
Workover/Drilling Recommendations

5222 Applevale Court
Kingwood, Texas 77345
(281)-361-5981
jmnor@aol.com

**Place Your
Business Card Here!**
\$125.00 for 10 issues
713-463-9476

BILL KALIL



INDEPENDENT PETROLEUM GEOLOGIST

P.O. BOX 1781
MIDLAND, TEXAS 79702
bilikalil@juno.com

PHONE FAX CELL
(432) 683-0990 (432) 683-0992 (432) 967-0056

JEFFREY J. DRAVIS, Ph. D.

Applied Carbonate Geology
Regional Play Evaluation

Core Studies • Reservoir Zonation
Depositional Models • Porosity Evolution
In-House and Field Carbonate Seminars
WEBSITE: www.dravisinterests.com
(713) 667-9844

TRRC Expert Witness

W.N. (Mac) McKinney, Jr.

Certified Petroleum Geologist

AAPG CERT # 2586
AIPG CERT # 6275
SIPES # 2651

3130 W. Benders Landing Blvd. Phone/Fax (281) 353-0661
Spring, TX 77386 wmcinney@houston.rr.com

INTEGRATED FIELD STUDIES EVALUATIONS, ACQUISITIONS Mature Producing Properties

Stratigraphic Determinations/Structural Analysis
Petrophysical Evaluation/Well Bore Histories
Reservoir Delineation/Production Analysis
Data Base Generation & Documentation
Exploitation Evaluation/Project Identification



RAY J. FORBISH, CPG & P.E.
Consultant Geologist
Geological Engineer

350 N. Sam Houston Pkwy E., S-106
Houston, Texas 77060
Phone: 281-999-3300
Fax: 281-999-3266
E-Mail: Rforbish@aol.com



GEOFIX-IT CONSULTING

GEOLOGY • SEQUENCE STRATIGRAPHY • BIOSTRATIGRAPHY
INTERNATIONAL AND DOMESTIC
TEL/FAX: (281) 497-5261

12315 Shadowvista Drive Nancy L. Engelhardt-Moore
Houston, Texas 77082-7309 Certified Petroleum Geologist
e-mail: nengelhardt-moore@houston.rr.com



manzanita TECHNICAL

281.560.3010

Petrophysical Solutions, Inc.

William G. Price
President



wgp@psi-petro.com

11767 Katy Frewy
Suite 380
Houston, TX 77079
281 558 6066
fax 281 558 5783
cell 713 206 2008



Houston
Geological Society
HGS Bulletin

Lilly Hargrave
Advertising Coordinator

10575 Katy Freeway, Suite 290 Office: 713-463-9476
Houston, Texas 77024 Office Fax: 713-463-9160
www.hgs.org ads@hgs.org

Wavefront LLC Oil & Gas Consultation
since 1996

Steven "Eric" Getz
IT Support Consultation (Geophysical &
Geological)

Network, Workstation, and Software Support
Seismic Data Loading
Seismic Modeling
Synthetic Seismogram Construction

(713) 305-5089 SMT Expert
EricGetz@EricGetz.com Microsoft Certified



Cossey & Associates Inc. geoconsulting

Steve Cossey
Chief Geoscientist

P.O. Box 1510
Durango, CO 81302, U.S.A.
phone/fax: +1 (970) 385-4800
e-mail: cosseygeo@aol.com
web page: www.cosseygeo.com

Specializing in Deepwater Clastics:
- Reservoir modeling
- Analogue Studies
- Field Courses
- Databases

Nov 2003

Seismotech

Geophysical/Petrophysical Exploration Services
Specializing in solving seismic modeling,
imaging, processing, and acquisition problems

Joseph M. Mills, Jr., Ph. D.













<http://www.seismotech.com/> 205 Hillcrest Drive
Alvin, Texas 77511-5209
email: joseph.mills@seismotech.com phone: (281) 334-7905



Royce Landman

(281) 240-2777 • FAX (281) 240-0043
Toll Free: (800) 758-1771
Email: rcl@rcl.com • <http://www.rcl.com>

Geophysical Workstations • Hardware/Software
LAN'S • Systems Analysis • Custom Programming

<p>MARINE GEOTECHNICAL DRILLING</p> <p>ALAN FOLEY, PG GEOSCIENTIST</p> <p>BENTHIC GEOTECH alanfoley@aol.com 3311 RICHMOND AVENUE SUITE 227 HOUSTON, TEXAS 77098 (713) 526-6832</p>	<p>Robertson LCY Gravity & Magnetics</p> <p>Fugro Robertson Inc. 6100 Hillcroft, 5th Floor Houston, Texas 77081 Direct : 713-369-6140 Main : 713-369-6100 Fax : 713-369-6110 Email : banderson@fugro.com Web Site : www.fugro-lct.com</p> <p>BRIAN ANDERSON Vice President of Marketing</p>	<p>THE MUDLOGGING COMPANY USA, LP 6741 Satsuma Drive Houston, TX 77041</p> <p></p> <p>DOUG KNEIS General Partner</p> <p>DIRECT: 832-204-6604 MAIN: 713-466-7400 CELL: 713-252-3526 FAX: 713-466-7595 dougk@mudloggingco.com</p>
<p>BSE</p> <p>JAMES B. BENNETT RANDALL SCHOTT Geology Geophysics</p> <p>811 Dallas Suite 1020 Houston, Texas 77002 Bus. (713)650-1378</p>	<p>ARK-LA-TEX LOG LIBRARY 400 TRAVIS, SUITE 500 • SHREVEPORT, LA 71101-3113 (318) 227-1641 • FAX (318) 227-1642 WWW.ARKLATXLOGLIBRARY.COM</p> <p>ELECTRIC LOG AND COMPLETION CARD COVERAGE: LOUISIANA • EAST TEXAS • MISSISSIPPI • SOUTHERN ARKANSAS SOUTHEASTERN STATES</p> <ul style="list-style-type: none"> • PRIVATE WORK ROOMS • LOG & MAP COPIER • IHS/DWIGHTS • CD/ROMS PRODUCTION DATA • COMPUTERIZED LOG DATA BASE • CALL IN OR FAX DATA RETRIEVAL SERVICE • EXTENSIVE INDUSTRY REFERENCE & TECHNICAL MATERIAL • BAR CODED CHECKIN/OUT <p>CALL FOR INFORMATION ON CORPORATE AND INDIVIDUAL MEMBERSHIPS OR DAILY USER RATES MARILYN KILBOURNE, MANAGER</p>	<p></p> <p>Nelson B. Yoder (President) (281) 471-8406 Fax (281) 471-7951</p> <p>"Specializing in Carbonate Petrography"</p> <p>INTEGRATED EXPLORATION SERVICES, INC. P.O. Box 1546 3903 Old Hwy. 146 La Porte, Texas 77572</p>
<p>NPS National Petrographic Service, Inc. THIN & POLISHED SECTION SERVICES PALYNOLOGY SERVICES PALEONTOLOGICAL & SOURCE ROCK SERVICES</p> <p>JOHN ARAIZA PRESIDENT</p> <p>5933 Bellaire Blvd. Suite 108 Houston, Texas 77081 www.nationalpetrographic.com</p> <p>(713) 661-1884 Fax: (713) 661-0625 email: npsinc@flash.net</p>	<p>CLASSEN EXPLORATION, INC.</p> <p></p> <p>JAMES S. CLASSEN Looking for close-in deals</p> <p>P.O. BOX 140637 BOISE, ID 83714</p> <p>BUS. 208-854-1037 RES. 208-854-1038 FAX. 208-854-1029</p>	<p></p> <p>SHANNON EXPLORATION Remote Sensor Interpretation, Processing, and CAD</p> <p>Patrick J. Shannon</p> <p>3030 South Gessner, Suite 262 Houston, Texas 77063 Tel. (713) 785-2599 Email: shannonexplor@msn.com</p>
<p>COLLARINI</p> <p>Collarini Engineering Inc. 11111 Richmond • Suite 126 Houston, Texas 77082 Tel. (832) 251-0160 Fax (832) 251-0157 djordan@collarini.com</p> <p>Dennis Jordan, P.E. President</p> <p><i>Petroleum Engineers & Geoscientists</i></p>	<p>JAMES M. NORRIS CERTIFIED PETROLEUM GEOLOGIST</p> <p></p> <p>Field Studies/Field Value Enhancement Property Purchase Evaluations Workover/Drilling Recommendations</p> <p>5222 Applevale Court Kingwood, Texas 77345 (281)-361-5981 jmnor@aol.com</p>	<p>Daniel C. Huston Holly Hunter Huston</p> <p></p> <p>HUNTER 3-D 3-D Seismic Interpretation, FTG Gravity Modeling, Seismic Inversion and AVO analysis</p> <p>6001 Savoy, Suite 110 • Houston, Texas 77036 (713) 981-4650 • (281) 242-0639 E-mail: hunter3d@wt.net Website: www.hunter3dinc.com</p>
<p>BER-EX-CO., INC.</p> <p>Orville Roger Berg, Ph.D. Exploration, Exploitation Seismic Evaluation Domestic, International</p> <p>400 Travis St., Suite 616 Shreveport, LA 71101-3108 (318) 220-0300 orberg@bellsouth.net</p> <p>9949 Beaver Creek Drive Shreveport, LA 71106 (318) 798-1748</p>	<p></p> <p>Jim (M. Ayad) Zaki Manager</p> <p>Geotech & Design Services Data digitizing, drafting & computer graphics</p> <p>7171 HWY 6 NORTH # 202 Houston, TX 77095 Jim.zaki@geotechmap.net</p> <p>Tel/Fax: (281) 858-7100 Cell : (281) 935-4830</p>	<p></p> <p>Jim Acker President</p> <p>Low Impact 2D/3D - No job too small</p> <p>Seis Pros Inc. 3331 Richmond Ave, Suite 228 Houston, Texas 77098-3015</p> <p>Tel: (713) 529 3140 Fax: (713) 522-5905 Email: jacker@seispros.com</p>
<p></p> <p>M. D. Campbell and Associates 1810 Elmen Street, Houston, TX 77019 www.mdcampbell.com</p> <p>Environmental Investigations on Oil & Gas Properties</p> <p>Telephone: (713) 807-0021 Facsimile: (713) 807-0985 Michael D. Campbell, P.G., P.H. email: mdc@mdcampbell.com</p>	<p>DRILLING-PROSPECTS.COM Visit Us Online: www.drilling-prospects.com</p>	<p>PalCon Database PALEO CONTROL SOUTH HALF TEXAS GULF COAST FRIO-VICKSBURG-JACKSON TOPS (& CONTROL WELL DATA) 22 Counties</p> <p></p> <p>JOHN PICKERING AAPG CP# 2234 PICKERING ENTERPRISES, INC.</p> <p>(281) 498-5249 11203 SHARPVIEW DR./HOUSTON TX 77072 jpickering4@houston.rr.com www.pickrecords.com/palcon.html</p>
<p></p> <p>iReservoir.com e-solution for global energy SM</p> <p>Geophysics Petrophysics Geologic Modeling Reservoir Simulation</p> <p>iReservoir.com provides world class 3D reservoir characterization and simulation along with secure Web-hosting of data and project results using state-of-the-art geoscience and engineering technology.</p> <p>1490 W. Canal Court Suite 2000 Littleton, Colorado 80120 USA Ph. 303-713-1112 Fax 303-713-1113 www.ireservoir.com</p>	<p>Place Your Business Card Here! \$125.00 for 10 issues 713-463-9476</p>	<p></p> <p>Life, Health, Disability, and Supplemental Plans AAPG's GeoCare Benefits Insurance Program P. O. Box 9006 Phoenix, AZ 85068-9006 800-337-3140 E-mail: geocarebenefits@agia.com www.geocarebenefits.com</p>



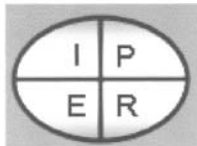
STEVE PRIMOFF
Sales Manager

**Continental
Laboratories**

Mudlogging Specialists Since 1954

6600 Fairbanks N. Houston
Houston, Texas 77040
steveprimoff@continentalabs.com

(713) 460-0780
Fax (713) 460-0788



International
Petroleum
Exploration
Review

Exploration Resources for Geoscientists

WWW.IPEXR.COM

Consulting Biostratigraphy

Domestic and International
Foraminifera, Calpionelids, Thin Sections



RASHEL N. ROSEN

2719 S. Southern Oaks Dr., Houston, TX 77068-2610
(281) 893-6646 fax: (281) 586-0833
cell phone: 832-721-0767
email: rashel-rosen@houston.rr.com

EPOCH

Well Services, Inc.

18231 AMMI TRAIL
HOUSTON, TX 77060

281-784-5555 MAIN
281-784-5413 DIRECT
281-784-5544 FAX
281-635-0491 CELLULAR
www.epochwellservices.com

ROBERT H. MCGUIRE, C.P.G.
SALES MANAGER

E-MAIL: robert.mcguire@epochwellservices.com

Richard B. Beverlin, Jr.
Texas Licensed Geoscientist - #223
Certified Professional Geological Scientist
Certified Petroleum Geologist
Registered Environmental Professional

2138 Fenwood (281) 334-1629
Kemah, Texas 77565 Email: beverlin@ix.netcom.com

PADGETT EXPLORATION

Carl M. Padgett

Dianne B. Padgett

Consulting Geophysicists

800 Wilcrest Drive, Suite 225
Houston, Texas 77042

Office (713) 781-8139
Res. (713) 784-1827



THUNDER EXPLORATION, INC.

WALTER S. LIGHT, JR.
PRESIDENT
PETROLEUM GEOLOGIST

1710 BOLSOVER
SUITE #1
MAILING ADDRESS:
P.O. BOX 541674
HOUSTON, TEXAS 77254-1674

OFFICE: 713-529-2233
CELLULAR: 713-823-8288
FAX: 713-815-1447
FAX/RESIDENCE: 713-522-4829
EMAIL: WTHUNDERX@AOL.COM

**Place Your
Business Card Here!**
\$125.00 for 10 issues
713-463-9476



**MMS GULF OF MEXICO
WELL LOGS ONLINE!**
www.blackbearddata.com
1-800-762-3057

Richard P. Lockwood, Ph. D.
Applied Clastic Sedimentation
830-377-1491, DICKL42@ktc.com



Lithologic Description,
Interpretation



Facies Maps



Reservoir Maps

Lithology to Depositional Environment to Better Reservoir Maps!



Texas Petrographic Service Inc.
Polish / Thin Section

12520 Market Street
Houston, TX 77015
E-mail: rocks@ev1.net

Phone: (713) 330-1018
Fax: (713) 330-8186
www.texaspetrographic.com

**Geosolutions &
Interpretations, LLC**

Geology Geophysics Engineering



Phone: (281) 679 0942
Fax: (281) 679 0952
Mobile: (281) 772 5826
800 Tully Rd, Suite 240K
Houston, TX, 77079

Gerardo Jager
President

E-Mail: gj@geointerpretations.com
http://www.geointerpretations.com

FUGRO GEOSCIENCE DIVISION



Fugro Multi Client Services

6100 Hillcroft (77081), P.O. Box 740010
Houston, Texas 77274, U.S.A.
Direct: +1 713 369 5859
Fax: +1 713 369 5860
Main: +1 713 369 5800
Email: kmohn@fugro.com
or: geoteam@fugro.no

KENNETH MOHN
Exploration Vice President

VERINova "VALUE VIA KNOWLEDGE"
HELPING YOU FIND OIL & GAS; G&G CONSULTING;
PROSPECTS; SEISMIC INTERPRETATION; RPFS

CONTACT: HANS SHELIN

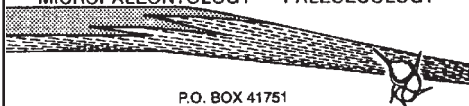
Managing Director - MS, MBA, CPGeol, LPGeophys, SIPES

Phone: 281-565-5305
FAX: 866-584-6404
Email: Sheline@VeriNova.com
Webpage: www.VeriNova.com

PO Box 16161
Sugar Land, TX
77496-6161

PCI PALEO CONTROL, INC.

MICROPALAEONTOLOGY PALEOECOLOGY



P.O. BOX 41751
HOUSTON, TEXAS 77241-1751
OFFICE 713-849-0044 RESIDENCE 713-466-7922



BIG "6" DRILLING COMPANY

7500 SAN FELIPE, SUITE 250
HOUSTON, TEXAS 77063

CHESTER B. BENGE, JR.
PRESIDENT

OFFICE: 713-763-2300
FAX: 713-763-4463
RES: 713-439-0903

CERT. PETR. GEOL. #4014 CERT. PETR. GPHY. #02 SIPES #1271

DEBORAH KING SACEY
PRESIDENT

AUBURN ENERGY

8588 KATY FREEWAY
SUITE 260
HOUSTON, TEXAS 77024

OFFICE: 713-468-3260
FAX: 713-468-3210
MOBIL: 713-816-1817

E-MAIL: dsacey@auburnenergy.com

Nomad Geosciences

Al Taylor - President & Chief Scientist
www.NomadGeosciences.com
11429 Purple Beech Drive
Reston, VA 20191-1325



Prospect Generation, Exploration and Development, Acreage
Evaluation, Reservoir Characterization and Consulting

Voice/Fax: 703-390-1147 Cellular: 703-489-8787
Email: Al@NomadGeosciences.com or NomadGeo@aol.com
Certified Petroleum Geologist # 5783 SIPES # 2946
Registered Professional Geologist: # 1002 (AR) # 3581 (TN)

**GEORGE N.
MAY
& ASSOCIATES**

Consulting Geologists
and Paleontologists

WILLIAM S. GRUBB

201 HEYMANN BLVD.
P. O. BOX 51858
LAFAYETTE, LA 70505

OFFICE (337) 234-3379
FAX (337) 234-3389
HOME (337) 235-1923

E.H. STORK, JR.

E.H. Stork, Jr. & Assoc.'s, Inc.
Consulting Geologists & Paleontologists

Specializing In
Biostratigraphy - Paleogeology - Geologic Interpretation

207 Pecore St.
Suite #2
Houston, Texas 77009

Office (713) 802-9731
Fax (713) 802-9732
Home (713) 466-9064



Scott Wallace
Data Processing Services

DAWSON GEOPHYSICAL COMPANY

10200 Richmond, Suite 120
Houston, Texas 77042
Office 713/917-6772
Fax 713/917-6773
Cell 713/775-9338
e-mail: wallace@dawson3d.com

Excellence That Runs Deep

SCA - The Upstream Petroleum Experts



Consultancy - Outsourcing/Consulting Specialists

Let the experts at SCA assist you in meeting your ever changing human resource requirements for technical experts.

We can quickly deliver expert:

- Geologists
- Geophysicists
- Reservoir Engineers
- Production Engineers
- Petrophysicists
- Geo Techs
- Engineering Techs
- Other Specialists

SCA has the capability to meet your global demand for manpower requirements with proven long/short term professional consultants you can rely upon, today!

SCA Is Also A Leader In Providing Training Solutions For The Petroleum Industry

Check Out Our Upcoming Training Schedule

February, 2006

20-24 Applied Subsurface Geological Mapping (Houston, TX)

March, 2006

13-17 Applied Subsurface Geological Mapping (Dallas, TX)

13-17 Deepwater Sands and Petroleum Systems Analysis (Houston, TX)

23-24 Quick Look Techniques From Prospect Evaluation to Reserves Estimation (Houston, TX)

April, 2006

3-7 Applied Subsurface Geological Mapping (Calgary, Alberta)

3-7 Fundamentals of Applied Geophysics (Houston, TX)

26-27 Logbust™ Computer Application of Multiple Bischke Plot Analysis (Houston, TX)
(Seismic and Well Log Correlation Validation/Growth Analysis)

May, 2006

3-5 Basics of the Petroleum Industry (Houston, TX)

7-13 Fluvial-Dominated Nearshore Depositional Processes and Systems (Western US)

8-12 Seismic Survey Design, Acquisition and Processing (Houston, TX)

10-12 Applied Compressional Structural Geology (Calgary, Alberta)

11-12 Quick Look Techniques From Prospect Evaluation to Reserves Est. (Dallas, TX)

15-19 Applied Subsurface Geological Mapping (Houston, TX)

15-19 AVO and Seismic Attributes (Houston, TX)

22-26 Principles of 3-D Seismic Interpretation (Houston, TX)

22-26 Petroleum Geology of Deepwater (Turbidite) Depositional Systems (Houston, TX)

SCA is authorized by IACET to award Continuing Education Units (CEUs).



Subsurface Consultants & Associates, LLC

www.scacompanies.com

10255 Richmond Avenue., Suite 300W, Houston, Texas 77042

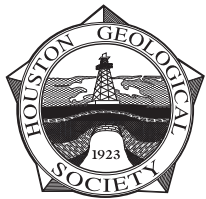
Phone: 713-789-2444 Fax: 713-789-4449

General Inquiries: info@scacompanies.com

Training Course Registration & Information: training@scacompanies.com

Consultants & Direct Hire Recruitment Services: consulting@scacompanies.com

Global Upstream Projects & Studies: projectsandstudies@scacompanies.com



HOUSTON GEOLOGICAL SOCIETY

10575 Katy Freeway, Suite 290 • Houston, TX 77024

Periodicals
U.S. Postage
PAID
Houston, Texas

Maximum reservoir performance



Want to make the most of your valuable oil and gas reserves?

Roxar's integrated technology solutions and services help companies of all sizes realize the full economic potential of their oil and gas resources.

- **Innovative modeling and simulation software**
- **Downhole monitoring and control systems**
- **Reservoir production multiphase metering**
- **Reservoir and production consultancy**

Roxar's leading-edge technology solutions from reservoir interpretation through to production & process meet the changing needs of users in managing the entire reservoir lifecycle.



INTERPRETATION



MODELING



SIMULATION



WELL & COMPLETION



PRODUCTION & PROCESS

roxar
MAXIMUM RESERVOIR PERFORMANCE