

# APRIL 2006

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
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2 Daylight Savings Time Begins	3	4	5	6	7	8
9 Palm Sunday	10	11	12 Technical Breakfast Passover Begins at Sundown	13 GSH Board Multi-Component SIG Newsletter Deadline	14 Good Friday	15
16 Easter Sunday	17	18 Technical Luncheon	19 Rock Physics SIG	20	21	22
23	24	25	26	27	28	29
30						

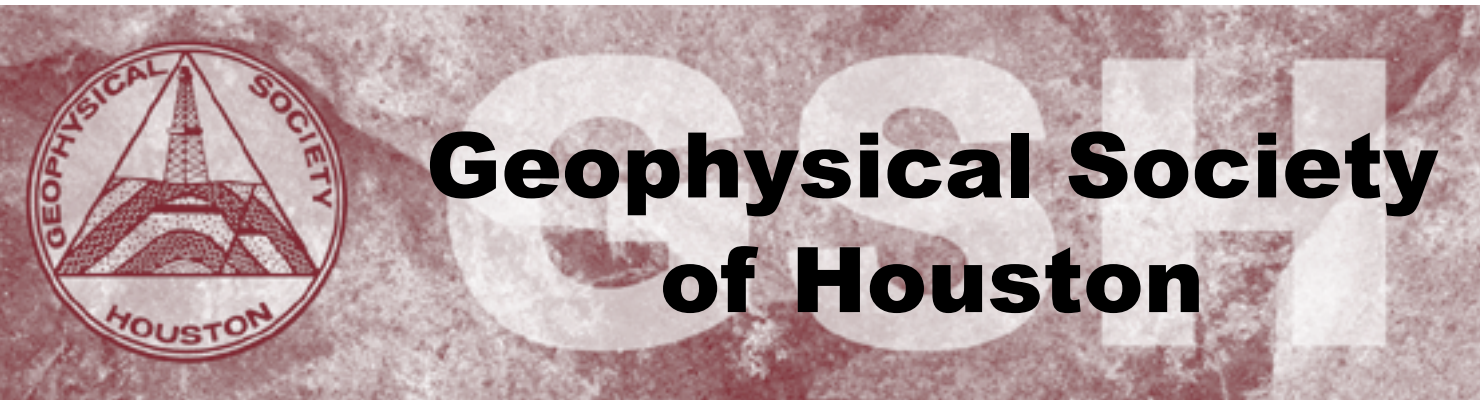
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## GEOPHYSICAL SOCIETY OF HOUSTON

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VOL. 40, NO. 8

NEWSLETTER

APRIL 2006

### GSH/HGS Technical Luncheon

**Date:** Tuesday, April 18, 2006

**Time:** 11:30 a.m.

**Location:**

Westchase Hilton  
9999 Westheimer,  
Houston 77042  
(just inside Beltway)  
713-974-1000

**Cost:** \$25 with reservation  
\$30 at the door

**Reservations:** Online at [www.gshtx.org](http://www.gshtx.org)

**E-mail:** [office@gshtx.org](mailto:office@gshtx.org)  
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**Title:** **Uses, Abuses, And  
Examples Of Seismic-  
Derived Acoustic  
Impedance Data:  
What Does The  
Interpreter Needs  
To Know?**

**Speaker: Rebecca Latimer,**  
Chevron Energy Technology  
Company, Houston

**Abstract:**

Throughout the years there has been a concerted effort to integrate the geoscience disciplines to become more adept at understanding the potential of an area. In the 1980s, geophysicists interpreted 2D seismic data by overlaying log data on paper seismic sections and using generalized depth-

*Technical Luncheon continued on page 15.*

### Technical Breakfast

**Date:** Wed., April 12, 2006

**Time:** 7:00a.m., breakfast;  
(no food or drink allowed  
in the Visionarium)

**Location:** Paradigm  
820 Gessner, Suite 400

**Website:** [www.paradigmgeo.com](http://www.paradigmgeo.com)

**Directions:** Exit Gessner south from  
the Katy Freeway; cross Kingsride and  
Barryknoll; turn left into parking  
garage to level F; take covered  
walkway across  
to Two Memorial  
City Plaza

**Speaker:**

**Keith Myers,**  
Q-Marine

**Abstract:**

An update from  
WesternGeco on the  
Q-Marine acquisition system, including  
recent applications to solving complex  
imaging issues by using under/over cable  
configurations.

**Bio:** Keith Myers was most recently the  
Marketing Manager for WesternGeco in  
the Asia Pacific region. Prior to this role,  
he was Product Champion for the Q-  
Marine acquisition system. He received a  
B.Sc Degree in Geology from Curtin  
University in Western Australia.

### President's Column

*By Steve H. Danbom, Past President*

#### **Diversity - It's a Good Thing**

**W**hen I joined the SEG in 1969, the total membership was about 6,500 with the international membership representing about 10% of that total. Compare that with today's totals: 25,000 members and 60% international representation. That's my definition of a global community of scientists regarding ethnic diversity. This ethnic diversity is also one of the reasons my wife and I find Houston an interesting place to live. Similarly, when you go to the SEG and find 12 coincident technical sessions at the Annual Meeting you realize how scientifically diverse we are as well.

Former U.S. House of Representatives Speaker Newt Gingrich is on record as saying we should give a stipend to U. S. students that study science and mathematics at the university. President Bush waded into this discussion the other night with his State of the Union Address. They are concerned about the American students seeming to prefer the MBA programs that are proliferating across the country. I beg to differ with former Speaker Gingrich, who is saying this, I

*President's Column continued on page 8.*

*Don't Forget  
To Vote for  
2005 - 2006 Officers*

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Technical Luncheon continued from page 1.

to-time curves to determine which events represented markers on the logs. Geologists interpreted cross-sections by drawing straight lines between wells to represent their correlations. Because technology advances have changed the process, many people today have become "interpreters" of 2D or 3D data on workstations where the log data, seismic data, and many derivations of the seismic data (attributes, coherence, P impedance, inversions, elastic impedance, lambda rho, etc.) are available to fine-tune the analysis process. The question, however, still remains: Are we integrating the data yet?

Inversion of seismic data into acoustic impedance provides a natural tie to the log impedance data and forces the geoscientist, in analyzing seismic data, to extract appropriate wavelets, determine the phase and amplitude of the data, determine whether or not the phase is stable throughout the volume, and very intimately tie the well log impedance data to the seismic data. Utilizing inverted data at the beginning of the interpretation process requires that the geoscientist understand the rock properties in their target area before embarking on an "attribute" interpretation. Even when the P impedance data do not clearly distinguish between fluids or lithologies, value is added by using these data as the first interpretation tool. The simplicity in knowing that the change of values represents a change in rock properties

without the complexity of wavelet variability is a distinct advantage to the interpreter. This initial process is critical to undertaking any interpretation of seismic data. Seismic data, being an interface property, contain tuning, side lobe effects, and phase and frequency variability, making it difficult to directly determine the geology. Inverted data, a layer property, are a more intuitive geologic tool that allows interpreters to utilize their natural ability to "see" the geology in the seismic data.

Today, advanced impedance tools use angle stack data and shear log components that can aid in distinguishing between lithologies and hydrocarbon properties. These data combine the benefits of angle data, AVO, and rock properties which—when analyzed together with the understanding of the depositional environments, stratigraphic concepts and the myriad of seismic attributes—can greatly increase the interpretative ability of the geoscientist.

This presentation will demonstrate the necessity for inversion and explain why it is beneficial in an interpretation workflow. It will examine both the strengths and drawbacks of using inverted data as compared with the seismic data and the original rock data. *It will also show*

- \* how scale differences between various data types can effect the results,
- \* how the interpreter analyzes the rock properties and utilizes these with inverted data and


\* how to spot pitfalls in the overuse of impedance data.

**About the speaker:**

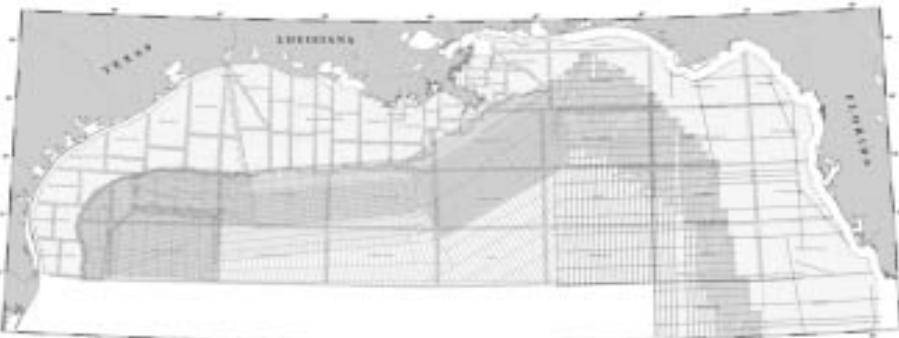
Rebecca Buxton Latimer is team leader for Chevron's Energy Technology deepwater stratigraphy team in Houston, Texas. She received an M.S. in Geology/Geophysics from Boston College in 1980 and has been in the oil industry for 26 years.

Latimer started her career with Amoco in New Orleans in 1980. In 1986, she moved to Houston with Amoco and worked as an interpreter and sequence stratigrapher in a series of basin modeling groups. In 1989 she moved to Stavanger, Norway, where she worked as a sequence stratigrapher for Enterprise Oil. After leaving Amoco in 1992, she worked for 5 years as an inversion/geostatistics specialist and Chief Geoscientist with Jason Geosystems in Houston.

Rebecca Latimer joined Texaco's Upstream Technology Group in 2000, doing in seismic inversion and geostatistics. After the merger of Chevron and Texaco, she became a team leader in ChevronTexaco's Energy Technology Company, supporting the business units, worldwide. She is also an editor for the SEG "Leading Edge" magazine.



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To ensure your information reaches the GSH society members in a timely manner it must appear in the appropriate newsletter issue. Please note the following deadlines and plan your function's publicity strategy accordingly. Items must be received on or before the corresponding deadline date. Please send any obituary or memorial articles of recently deceased members to the Editor for inclusion in the newsletter. Materials can be emailed to John Sumner at [sumnergeo@earthlink.com](mailto:sumnergeo@earthlink.com) with a copy sent to Fernanda Araujo at [fernanda.v.araujo@conocophillips.com](mailto:fernanda.v.araujo@conocophillips.com), and Glenn Bear at [glenn.w.bear@exxonmobil.com](mailto:glenn.w.bear@exxonmobil.com). If you have any questions please call John Sumner at 713/666-7655, Fernanda Araujo at 832/486-2564, or Glenn Bear at 713/431-6583.

### 2006 GSH Newsletter Deadlines

Issue ..... May 2006  
Deadline..... April 13, 2006

Issue ..... September 2006  
Deadline..... August 8, 2006

## Announcements

Technical Breakfast  
April 12, 2006

Multi-Component  
Seismic SIG  
April 13, 2006

Technical  
Luncheon  
April 18, 2006

Rock Physics  
SIG  
April 19, 2006

## Auxiliary

### The Geophysical Auxiliary of Houston News and Events!

On Sunday March 19th the Geophysical Auxiliary joined with our spouses and friends at the scenic Lakeside Country Club for our annual Spring Brunch. We were treated to an elegant buffet and some very special entertainment provided by the Country Playhouse Theatre Company. As always this was a wonderful opportunity to reconnect with our friends and take in the lovely surroundings of Lakeside. Many thanks to our Chairperson and her wonderful committee for hosting such a special event.

On Thursday April 20th the Auxiliary will be hosting a special Spring Event Wine Tasting. Auxiliary members will meet at Circle S Vineyard in Sugarland to enjoy a tour of this wine making facility, a wine tasting and lovely made-to-order pasta buffet in an intimate home-style setting. This wine shop/winemaker has a lovely selection of wine related gift items as well as on-site wine sales. Seating will be limited to 25 people at this event and attendees must be able to walk up a flight of stairs as there is no alternate access available. Contact Chairperson, Luann Cefola at 281-759-7338 for more details.

We will round out our year on May 17th with our Annual Business Meeting and luncheon at the ever popular Houston Racquet Club. Along with this annual business meeting there will be a special program on fashion accessorizing presented by Steinmart. Please plan on joining us so that you can finally find out "What should I wear with this outfit?".

The Geophysical Auxiliary of Houston invites the wife of any present or past member of the GSH or SEG, the widows of former members of the GSH and SEG, and women members of these organizations to join us and become a member of the GAH for 2005-2006. Our Membership Chairperson, Kathi Hilterman, wants to hear from you! We are busy planning many wonderful events for your enjoyment and yearly dues are only \$15.00. Call now and don't miss out! Call Kathi at 713-467-2599 or GSH Liaison, Luann Cefola at 281-759-7338 for a membership application and information on how to join.

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# Museum News

by Tom Fulton

The GSH Museum Committee was invigorated by the successful SEG75 display and the sight of interested viewers. Bill Swart and I as having the longest recent time on the committee are pleased with the enthusiasm of Gene Womack, Haynie Stringer, Bill Gafford, and Benegene Kring. We have started the process of tabulation/ inventory verification of pieces on hand (over 450 out of perhaps 900), on display (over 200), recording pictures of each (perhaps 320), and moving display quality artifacts from S. Rice to the Bureau of Economic Geology. There may be as many as 450 still at S. Rice including TBs, instruments, geophones, Landmark, and Key punch. We are moving them a pickup load at a time. Homes for both the Landmark Workstation and key punch are needed.

The experience gained during SEG75 allows us to better identify and appreciate the artifacts. For example finding a "blast phone" (of a different type than from Petty) integrated with

its amplifier in a box plus the refraction reports indicating that 17 pound surface charges were used verifies that the air wave was used to measure distance. The recorder data sheets also indicate temperature as well as wind direction and speed were recorded. The subsurface charges ranged up to about 300 pounds with little info on charge depth (with that size charge not likely needed). Distances were measured in meters, depths in feet, and map distances in Varas. Some artifacts defy identification such as a black metal 9" cube with at least one knob and a slit—but no other opening.

A preprinted observers form from 1926 shows GRC Karcher troop 3 had a Chief of Party, B. B. Weatherby, and Observer, F. F. Campbell. I think this was also referred to as Pure Party 2. I've reviewed a couple of perhaps 30 reports available of this era when refractions were used and conclude the box contains much information of value to historians. It provided much of the source material for the significant '32 report



combining TB and refraction data which Gary Servos has had scanned (I need to get it back to pull a display for Wichita and also need the Prakla report from the first seismic work in Colorado). This box of reports, a collection of prospect reports from the '50s and '60s and our collection of old seismic records are courtesy Unocal, having been saved from the landfill.

Needless to say, we continue to find things we wish we had displayed but remain pleased with our relationship with folk at both Iron Mountain and the Bureau of Economic Geology.

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6th ANNUAL  
GSH SALTWATER TOURNAMENT

Saturday, June 24, 2006

Teakwood Marina, Village of Tiki Island, Galveston, Texas  
Galveston Bay Complex and Offshore

This year's Saltwater Fishing Tournament will include an Offshore Division to be held on Saturday, June 24 at the Teakwood Marina, Village of Tiki Island, Galveston, Texas. We are looking forward to a big event this summer and we encourage full family participation.

**Galveston Bay Complex Division**

Trophies will be awarded for the heaviest individual Redfish (Non-Tagged), Speckled Trout, and Flounder.  
Trophies will also be awarded for the heaviest individual Stringer - 1 Redfish, 3 Speckled Trout, and 1 Flounder.

**Galveston Offshore Division**

Trophies will be awarded for the heaviest individual Red Snapper, King Mackerel, and Dolphin.

**Registration Fee (\$60.00) includes:**

Launch Fee, GSH Fishing Cap, Fish Fry Meal after weigh-in, Refreshments, Trophies and DOOR PRIZES.  
Greg Doll, Strand Energy, will be our Weigh Master • *SEEKING SPONSORSHIP FOR THIS EVENT*

**For more information, please contact:** Bobby Perez (HGS & GSH) 281-240-1234 ext. 219 Office  
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The Geophysical Society of Houston is a non-profit organization serving the Geophysical Industry. Corporate and individual contributions are appreciated and will be acknowledged on several sponsor boards and banners at the Weigh-In Station and Marina. All contributors will be recognized in the GSH newsletter following the tournament. This is a great way to entertain friends, family, business associates, and clients. So spread the word!

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Golf Tournament and Dinner  
Geophysical Society of Houston

**DATE:** Monday, May 15, 2006  
**PLACE:** Kingwood Country Club  
**TIME:** 9:30 AM Registration  
11:30 AM Tee off (Shotgun)

**FORMAT:** Four Man Florida Scramble  
**COST:** \$125 per person  
**DEADLINE:** April 15, 2006

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GOLFERS READ CAREFULLY

No entry will be accepted until the entry form and fees are received in full. **NO EXCEPTIONS!!!**

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

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

**GOLF TOURNAMENT FORM**

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

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



# SPECIAL INTEREST GROUPS

## ROCK PHYSICS SIG

**Date:** Wednesday, April 19, 2006  
**Time:** 5:30 p.m.  
**Location:** Visualization Center  
 Veritas DGC, Inc.  
 10300 Town Park Dr.  
 Houston, TX 77072  
**Title:** Rock Physics and AVO Modeling  
**Speaker:** Lev Vernik, Noble Energy

**Abstract:**

Tremendous complexity of geological sequences and petrographic variability within them makes one wonder how is it at all possible to utilize AVO attributes in exploration and reservoir characterization. A significant insight is gained when these complexities are cast in terms of seismic rock properties and their distributions that can be linked to geological and petrographic features of the rock formations.

Using acoustic-shear impedance, or so-called AI-SI, space it's possible to relate rock properties to the familiar AVO classification schemes. In many instances, the single interface AVO signatures can be gleaned immediately from the AI-SI crossplot; however, in more complex situations synthetic

AVO modeling must be done to properly interpret seismic gathers in terms of fluid and lithology effects.

We'll look at some schematic examples of shale/sand interfaces with varying seismic rock properties and see how these translate into synthetic AVO gathers. Some peculiarities of the resulting AVO signatures will be discussed and easily related to shale/sand properties and net/gross ratio.

**Bio:**

Lev Vernik is a petrophysicist at Noble Energy. He has held similar positions at ARCO, Vastar and BP. Before that he did research on rock physics and rock mechanics at Stanford.

*President's Column continued from page 1.*

believe, because he is worried about the potential "brain drain" in this country - specifically the foreign national students who are learning at American universities only to return home to practice their new skills. What I suggest for this situation is not to mimic the financial tariff we often use to regulate goods and services flowing to and from our country, but rather to let the marketplace be the deciding factor and allow the immigration laws to give these often excellent students a more realistic choice to either stay in the U.S. or return home.

At Rice University, I have a teaching assistant for one of the two classes I teach, because this class has a lab for processing seismic reflection data. Rice international students have held this teaching assistant post for three of the past four years, with the countries of Nigeria, Italy

and Korea represented. From my personal experience, each of the students has been delightful, possessing the right combination of organization and diligence in the classroom.

I have heard it said that two items within the American community that are often coveted by the world are our agribusiness and our university systems. So, let the world come and purchase our abundant food and take advantage of our universities. I am not saying that universities should necessarily seek these students to the exclusion of American students. Neither quotas nor pre-set admission standards are entirely equitable. Let's just make sure that the playing field is level for admissions and let those that choose to study science and engineering benefit from such rules of fair play.

## Multi-component Seismic SIG

PLEASE REGISTER AT THE GSH WEBSITE  
 (www.gshtx.org)

**Date:** Thursday, April 13, 2006  
**Time:** 5:30 pm - 6:30 pm  
**Location:** PGS  
 15150 Memorial Drive, Houston, Texas 77079  
**Title:** **Using 9C shear wave data to delineate sand in Morrow channels**  
**Speaker:** Jasha Cultreri\*, Consulting Geophysicist,  
 Allen Gilmer, Vecta Technology,  
 Bob Hardage, University of Texas, Bureau of Economic Geology  
 \*speaker

**Abstract:**

Incorporating the shear component of multicomponent data has long held the promise of delineating sands from shales. Following the processing methodology outlined by Simmons (SEG 1999), 3D 9C shear wave data is sensitive to the difference in rigidity between sands, shales, and limestones. Two 3D 9 component seismic surveys were acquired to delineate Morrowan drill sites; one in SE Colorado, one in SW Kansas. Two 3D interpretations are presented which show a better than 80% match between 25 wells in eight square miles of 3D 9C seismic data. Twelve to eighteen foot thick sands can be detected. Sands less than six feet thick cannot be detected in these surveys. Shear wave data in both surveys show character anomalies not seen in the P wave data over the sands. An exploratory well was drilled in one of the surveys finding 30% more sand than any of the wells drilled pre-survey. 3D 9C data appears to be very robust in locating and delineating sands incised within a shale sequence.

**Biography**

Jasha Cultreri is an independent consulting geophysicist with 32 years experience. In 1974 after graduating from New Mexico Tech with a B.S. in Geophysics and a B.S. in Physics, he worked 19 years at ARCO Oil and Gas in Exploration and Exploitation. He started his career on a seismic field crew, and then progressed to processing, interpretation, and management. His 3D career began in 1978 with ARCO working on 3D design research. After ARCO, Jasha ran a successful consulting business for eight years prior to helping form Vecta Exploration to explore for oil and gas reserves in stratigraphic traps using 9C-3D data. Jasha has served as president of the Permian Basin Chapter of the Society of Exploration Geophysicists. His current research interest is lithology determination from 3D-9C seismic data.

Society Affiliations: SEG, AAPG, PBGS, WTGS, DGS

Daylight Saving Time  
 Begins Sunday, April 2nd  
 Don't Forget!



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