



# Geophysical Society of Houston

VOL. 35, NO. 4

NEWSLETTER

NOVEMBER 2000

## Technical Luncheon

Date: November 21, 2000  
Time: 11:30 a.m.  
Location: H.E.S.S. Building,  
5430 Westheimer  
Cost: \$20



**Speaker:**  
Mark A. Sparlin  
Hampson-Russell  
Geoscience Services

**Title:**  
Improved AVO Crossplot Evaluation  
Using  
Visualization Techniques

### Summary

AVO crossplotting is a widely employed AVO analysis technique that has gained acceptance in the geophysical community over the past decade. Crossplotting AVO attributes such as the AVO intercept and gradient has proven useful in hydrocarbon diagnostics in un-

consolidated clastic basins worldwide. Improved understanding and interpretation of the crossplot results can be obtained through 3D visualization of the AVO crossplot. Modeled and observed 3D seismic crossplots, through visualization techniques, demonstrate the improved recognition of background trends and associated AVO anomalies, which in turn improves interpretation and analysis.

### Introduction

It has been demonstrated in the literature and through professional presentations that AVO analysis can be a diagnostic tool in hydrocarbon detection and delineation. AVO analysis, using first two-dimensional data, and now three-dimensional data has proven its value in both exploration and production projects. The present momentum toward 3D AVO analysis continues to yield positive results.

Over the past decade, AVO analysis has shifted from single (combined) attribute analysis to a multi-attribute approach, and AVO (attribute) crossplotting

is one such technique that is widely practiced. In addition to computing combined AVO attribute sections using the intercept, gradient, near angle stacks and far angle stacks, or their equivalents, both data sets can be plotted against one another through crossplotting techniques. Under ideal situations, common lithologies and fluid types generally cluster together in AVO crossplot space permitting a straightforward interpretation. Together with AVO modeling and the AVO attribute section, the crossplot is used to evaluate the potential for discriminating fluid-type and or lithology of the objectives. AVO crossplotting, which typically uses the AVO intercept (A) and gradient (B), assists standard AVO analysis techniques by identifying background trends and anomalous responses (off trend aggregations) that may or may not be associated with hydrocarbons (Castagna, Swan, Hilterman and Verm, among others, have presented work regarding these concepts). Using the A and B data volumes and small target

*Technical Luncheon continued on page 4*

## HGS/GSH

### Shrimp Peel

Friday, November 3

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## Editor's Note

To insure your information reaches the GSH society members in a timely manner it must appear in the 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. Materials may be sent to patty@diamondg.com or faxed to 713/783-9780. If you have any questions please call Patty Cardwell-Swords at 713/783-7837.

### 2000 GSH Newsletter Deadlines

Issue ..... December 2000

**Deadline .. November 10, 2000**

Issue ..... January 2001

**Deadline .. December 15, 2000**

## Membership Report

The GSH would like to welcome its newest members:

### ACTIVE

Douglas Beckman  
David Homan  
David Paddock  
Jeffrey Rowe  
Martha Sadlick  
Bennie See

### ASSOCIATE

Glenn Bixler  
David Kessler  
Ding-Yenn Maa  
M. Sue Rezai  
Michael Ring  
Adam Seitchik  
William Skinner  
James Stephens

### STUDENT

Mariana Gherasim

## GeoEvents Calendar

Make reservations by e-mail at [reservations@hgs.org](mailto:reservations@hgs.org) and include your member number (found on Bulletin mailing label), or use the phone reservation system at 713/917-0218.

### Reservation Codes

Use these codes to make voice mail meeting reservations:

Technical Luncheon .....	<b>601</b>
Data Processing SIG .....	<b>602</b>
Interpretation SIG .....	<b>603</b>
Reservoir SIG .....	<b>604</b>
Potential Fields SIG .....	<b>605</b>
Environmental Applications SIG .....	<b>606</b>
Breakfast .....	<b>607</b>

The GSH would like to thank the following companies for their support as corporate members:

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**Conoco**

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**Thank you for your supporting the GSH!**

For information on how to become a corporate member or to endow a scholarship with an organization's name please contact Pat Starich (281) 423-5036 or the GSH office at (713) 785-6403.

specific windows where  $V_p/V_s$  are nearly invariant, a background trend can often be determined which defines the wet-sand/shale interfaces and other similar lithologies. AVO (A-B) pairs lying off the trend are considered anomalous. Through interactive testing, with a priori information through modeling, and with geological integration of the basin geology, the crossplot can be used to assess hydrocarbon-bearing strata or key lithologies. In light of the aforementioned, crossplotting has evolved to be a crucial component in AVO analysis.

However, even with current computer speeds and inexpensive disk drive costs, interactive crossplotting of seismic data is computationally intensive. A 23 square kilometer area with 25 meter square bins and 6s records at a 4ms sample rate results in nearly  $3.6 \times 10^8$  A-B pairs, and for a 100 sq. km area

using a 1s window,  $4.0 \times 10^7$  A-B pairs. Because of the large quantities of crossplot pairs, much of the seismic crossplotting performed to date on projects has taken the form of 2D profiles or small subsets of seismic volumes, resulting in a composite-summary crossplot of the A-B pairs. These composite-summary crossplots have worked fairly well for the classic AVO anomalies, but can be confusing for the not-so-obvious objectives. The dominant reasons for the shortcomings of the composite-summary crossplot are: the immense amount of points associated with the background responses which clutters the displays (even for reduced subsets of the entire volume); and second, the three dimensional nature of the subsurface being analyzed. These two detractors to the composite-summary crossplot are linked, and through standard seismic visualization techniques can be overcome.

Mark Sparlin works with Hampson-Russell in the capacity of Senior Research Geoscientist where he is currently involved with consulting services in AVO analysis and neural-network / geostatistical seismic attribute evaluation in applications to 3D seismic/borehole reservoir characterization projects. Mark has twenty years of experience working in the oil industry for major oil companies as an exploration geophysicist and Schlumberger Technology Corporation as Manager of Geophysical product development. He has also been employed with The University of Texas Research Campus involved in geophysical/geological evaluations in international reservoir characterization studies.

Mark received a B.S. in geology from the University of Akron with honors and an M.S. in Geophysics from Purdue University. Email: msparlin@hrs-us.com

## Join the Geophysical Auxiliary of Houston!

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 or SEG, and women members of the GSH or SEG to join us for our 2000-2001 events.

We would like to entice and entertain you with a variety of interesting, fun-filled events. Our next event will be held on **Thursday, November 16** we will tour Rienzi Collection and Gardens at 1406 Kirby Drive in River Oaks.

**Friday, January 12**, we will meet at the Houston Junior League, 1811 Briar Oak Lane, always a delightful location, for a luncheon. Maggie's Clothing of Old Town Spring will present a style show with our own GSH members as models.

**Sunday March 11**, the Spring Brunch will be held at Lakeside Country Club, 100 Wilcrest Drive. For a "space walk on the wild side" we will hear from Dr. Pat Dickerson who trains the astro-

nauts at NASA in Clear Lake and may be able to get us a seat on a flight to Mars.

**Tuesday, April 10**, we will partake in a gastronomical tour of Houston's own downtown Chinatown. Dorothy Huang will direct us through a Dim Sum luncheon and tour local shops and teach us how to shop at a Chinese grocery store.

Yearly dues are only \$15.00. Call Marinell Williams at 713-467-4517 or Donna Parrish at 281-589-8088 for information on how to join. For more information about the programs and to offer suggestions, please call Georgeann Massell at 281-353-4517.

The GAH encourages social relationships among its members, donates money to the GSH scholarship fund and assists the GSH in any manner possible.

*"Strangers are just friends waiting to happen."*

We look forward to having you join us!

### JEROME THORNBURG

**age 51  
passed away  
September 2, 2000.**

Jerry was a petroleum geophysicist with Conoco Inc. for 21 years. He previously worked for Cities Services Oil Company and served in the U.S. Army. He was a member of the GSH, AAPG and SEG. Preceded in death by his father and daughter, Sharon, he is survived by his wife, Janet; daughter, Laurel; and mother, sister, brother and niece. Memorial gifts can be made to Hospice at the Texas Medical Center, 1905 Holcombe Blvd., Houston, Texas 77030 or the Department of Geological Sciences, Indiana University, 1005 E. Tenth St., Bloomington, Indiana 47405-5010.

# SIG ANNOUNCEMENTS

## POTENTIAL FIELDS SIG ANNOUNCEMENT

### The Role of gravity and gradiometry in seismic depth imaging

Ed. K. Biegert - Shell International Exploration and Production  
Manik Talwani - Rice University  
Dirk Smit - Shell Expro

Date: Thursday November 16, 2000  
Time: 5:30 Social Hour  
6:30 Dinner  
7:30 Presentation  
Location: HESS building, 5430 Westheimer, Houston  
Cost: \$25.00

#### Contact:

**Afif Saad, Chair - GSH Potential Fields Group**, at 281-342-8575 (afifsaad@netscape.net) or

**Bob Van Nieuwenhuise,**

**Co-Chair** at 281-679-2208

(Bob.VanNieuwenhuise@pgs.com)

by Tuesday, November 14, 2000 for reservations. E-mail is best because we can confirm your reservation. Please HONOR your reservation! We must bill no-shows!

#### Abstract:

Estimating velocity models for seismic depth imaging in complicated geologic settings remains a challenging problem.

We illustrate the role of gravity and gradiometry that has successfully been used to

1. Identify regions where the seismic model is incorrect, and
2. Predict velocity updates in these regions.

We discuss the roles gravity and gravity gradients can play in the interpretation process, leading to statements on resolution and effectiveness.

We also compare several different inversion methods for gravity gradients.

A case history using gravity and gravity gradients to guide velocity model updates for a shallow but complicated salt structures serves as an illustration

#### Biographies:

Ed Biegert (Shell), Manik Talwani (Rice), and Dirk Smit (Expro) have been investigating the potential of applying gravity and gradiometry to various exploration and production problems and in particular to their application to the construction of velocity models for pre-stack depth migration.

## DATA PROCESSING SIG

#### Theme:

Converted wave and multi-component processing

#### Speaker 1:

Min Lou, PGS, Seres Division

#### Title:

Shear-wave splitting and its implied fracture orientation analysis from PS waves - synthetic and OBC data examples

#### Speaker 2:

Richard R. Van Dok, Western Geophysical

#### Title:

Static correction issues for PS-wave surface seismic surveys

Date: Wednesday, November 15, 2000

Time: Social 4:30  
Presentations  
5:00 to 6:30

Cost: NONE

Location: PGS HC-2 is on the north side of Richmond Ave, between Wilcrest Drive and the Sam Houston Tollway. Entrance to the parking lot is the first turn immediately west of Rogerdale Road and Richmond Ave. Ample parking is available. Enter the building on the west side and the meeting room is down hall to right.

#### Organizers:

Jim Myron, jim.myron@pgs.com

Mike Reblin, geowiz76@aol.com

#### Abstract 1

Shear-wave splitting and its implied fracture orientation analysis from PS

waves - synthetic and OBC data examples

#### Min Lou, PGS, Seres Division

An important potential application of PS wave (or C-wave) is to detect subsurface fracture orientation and density by analyzing shear-wave splitting in PS waves. The fracture orientation is determined from the particle motion direction of fast shear wave (S1) while the fracture density is estimated from the delay time between fast (S1) and slow (S2) waves. This paper presents a two-component rotation/cross-correlation method to detect shear-wave splitting from PS waves. By analyzing a set of synthetic data and a set of 4C ocean bottom cable (OBC) field data with the presented method, the results demonstrate that the two-component rotation/cross-correlation method is robust to detect shear-wave splitting and its implied fracture orientation and density from PS waves. The results also show distinguished shear-wave splitting examples identified from the OBC field data. In addition, this paper presents that de-coupling PS waves into S1 and S2 shear wave components improves the temporal resolution of PS waves in the presence of shear-wave splitting.

#### Biography

Min Lou received a BS in applied geophysics from the University of Petroleum, China, and a Ph.D. (1992) in geophysics from the University of Edinburgh, Scotland. He worked at the University of North Carolina-Chapel Hill and at Duke University for four years as a Research Associate before he joined PGS Seres in 1997. He is currently a Senior Geophysicist at PGS Seres. His professional interests include seismic wave propagation and modeling, seismic anisotropy and fracture detection, and multi-component seismic data processing

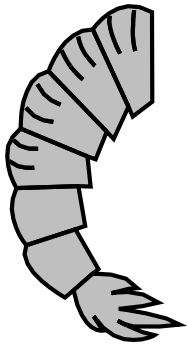
#### Abstract 2

Static correction issues for PS-wave surface seismic surveys

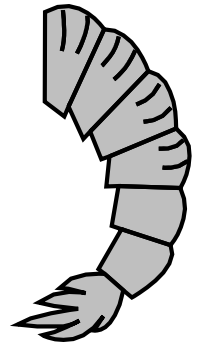
Richard R. Van Dok, Western Geophysical

Several issues related to the calcu-

*Data Processing continued on page 7*



**HGS/GSH**



# *Shrimp Peel*

**Friday, November 3, 2000**

**5:30 p.m. until 10:00 p.m.**



## **SAM HOUSTON RACE PARK**

7575 N. SAM HOUSTON PKWY WEST  
(Beltway 8 between Hwy 290 & I-45 N)

**TICKETS \$25.00 Advance / \$35.00 At The Door**

- Advance ticket sales through October 20th
- Tickets mailed to you beginning October 2nd
- Event held on the Infield (weather permitting)
- No refunds

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NUMBER OF TICKETS \_\_\_\_\_

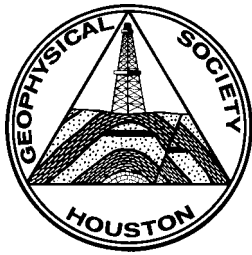
**Make checks payable to: HGS / GSH SHRIMP PEEL**

Mail to: Subsurface Consultants & Associates  
Attn: Lee Shelton

2500 Tanglewilde, Suite 120 • Houston, Texas 77063

For more information call 713/789-2444 or e-mail: LShelton@scacompanies.com

*Shrimp • Beer & Beverages • Horse Races • Live Music*



# Sporting Clays Tournament Results

August 26, 2000

Attendance for the event increased with 230 shooters this year and better family attendance. Many members brought their teenage children to shoot this year and compete in the junior category which was added this year. Trophies were awarded in each class as follows:

#### A Class

1st place - Tim Kiefer  
runner up - Tim McGinty

#### B Class

1st place - Kyle Tudor  
runner up - Woody Pace

#### C Class

1st place - Glenn Remmert  
runner up - David Pritchard

#### D Class

1st place - Craig Gumley  
runner up - Bill Dean

High Lady - Kayleen Robinson

High Junior - David Pitcher (new category this year)

This GSH would like to give a special thanks to all of its sponsors. Each of them helped make the GSH Sporting Clays Tournament a success!

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TGS Nopec  
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Western Geophysical

*Data Processing continued from page 5*

lation and application of surface-consistent static corrections are addressed in this presentation including datuming, long-period detector statics, and the integration of residual statics corrections with the CCP binning process. Each issue must be addressed during the processing sequence to properly position the prestack data for subsequent time or depth imaging. It is particularly important to resolve these static corrections prior to any prestack imaging that will destroy the surface-consistency of the data.

Proper datuming of PS-wave data using static time shifts can be inaccurate. This is particularly true when the source statics being used are the result of some method of refraction statics. Most refraction statics methods imply that the sources are repositioned at some intermediate datum below the weathering layer. This may not be appropriate for the shear-wave detector static correction. One solution that can help alleviate this inconsistency is the use of a different replacement velocity when calculating datum corrections for the detectors. In the absence of accurate near-surface velocity information, the choice of this replacement velocity can be challenging. Often the only way it can be determined is by scanning over reasonable values and selecting the best-stacked result. The offshore OBC case can present additional difficulty where water bottom topography is significant and a reasonable shear-wave replacement velocity for the water layer is needed.

Long-period shear-wave detector statics can be significant, but are often difficult to estimate given the highly variable  $V_p/V_s$  values at the near surface. Conventional P-wave refraction statics methods are not generally useful due to the lack of easily picked, refracted shear-wave arrivals. One method available involves the use of P-wave common-detector stacks to estimate the geologic structure and correct the PS-wave data to match. To do this, the P-wave data must be stretched to simulate PS-wave time using some interpreted  $V_p/V_s$ . Cross-correlation methods may then be used to automatically calculate PS-wave detector statics.

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# The Second Annual Robert E. Sheriff Lecture Series

Date: Monday,  
November 20, 2000  
Time: 5:30 p.m.  
Location: Westchase Hilton,  
9999 Westheimer

## Featured Speaker:

Dr. Kevin C.A. Burke  
"Africa's Vast Petroleum Systems"

- Come and see posters on current thesis and dissertation research activities of UH graduate students.
- Get a quick synopsis of presentations from the AAPG, GSA, SEG, GCAGS and AGU conventions and meet the next generation of Geoscientists from UH.
- Learn about the Allied Geophysical Lab and the Geochemical Institute

Mr. Wes Johnson, president of the University of Houston Geosciences Alumni Association (UHGAA) will MC.

Dr. John F. Casey, Department of Geosciences Chairman will give an overview of current activities at UH.

Sponsored by the University of Houston Geosciences Alumni Association (UHGAA), in association with the Houston Geological Society International Explorationists Group (HGS).

The Dr. Robert E. Sheriff Lecture Series:

Dr. Robert Sheriff has had a long and distinguished career in industry and academia. He was chief geophysicist at Chevron and a senior vice president at Seiscom Delta before coming to the University of Houston in 1981. He has authored, co-authored and edited several widely used books for exploration and production geoscientists, including: "Applied Geophysics", "Geophysical Methods", "Reservoir Geophysics", "Exploration Seismology", "Problems in Exploration Seismology and their Solutions," "Seismic Stratigraphy" and his "Encyclopedic Dictionary of Exploration Geophysics." At UH he has played an instrumental role in helping build the reflection seismology faculty and staff in the Geosciences Department at UH to the largest in the nation. Dr. Sheriff contributes very generously in both time and funding to student and programmatic causes within both the Department and the Allied Geophysical Lab.

He has recently contributed funding for two graduate student endowed fellowships at UH and has generously endowed the Robert and Margaret Sheriff Chair in Exploration Geophysics.

In recognition of Dr. Sheriff's many contributions to the University, the ap-

plied petroleum community and the geoscience profession as a whole, the University of Houston Geoscience Alumni Association initiated the Sheriff lecture series in 1999. We are very pleased that this year's lecture, which continues to honor Dr Sheriff as an educator, scholar, and a proponent for the geosciences, will be co-sponsored by the International Explorationists Group of the Houston Geological Society. The Lecture Series purpose is to attract top geoscience speakers with highly relevant ideas to exploration geology or geophysics. The upcoming lecture on "The Vast Hydrocarbon Systems of Africa" by Dr. Kevin Burke will be the second in the series. There will also be approximately 30 posters presented by current faculty and graduate students at the University of Houston.

Complete details, including the full abstract of Dr. Burke's talk, and a complete list of posters are available at the Houston Geological Society website <http://www.hgs.org>.

*Data Processing continued from page 7*

Finally, proper spatial positioning of the reflection point is critical in computing accurate residual statics. CCP binning methods that preserve surface-consistency must be iterated with residual statics computation and velocity analysis to improve convergence to a stable solution.

## Biography

Richard Van Dok is a geophysical technical coordinator for Western Geophysical's Denver office. He earned his BS degree in Geophysical Engineering from the Colorado School of Mines in 1984 and began working for West-

ern Geophysical in its Houston headquarters shortly after graduation. While in Houston he worked in various capacities within the seismic data processing center including marine and land processing, technical support and training.

In 1988 he transferred to the Denver data processing office where he continued to work as a land processing group leader and supervisor. He now holds a geophysical technical support position and is responsible for transferring new technologies from research into production. His current interests include multi-component acquisition and mode-converted seismic, fracture detection, seismic inversion and time-lapsed seismic monitoring applications.

## Peter Lang Scholarship Fund

Due to his endeavors in the industry and the community, a scholarship fund has been established in honor of Peter Lang (1926-2000). Corporate and personal contributions can be made through the GSH office at 7457 Harwin Drive, Suite 301; Houston, TX 77036; Attn: Joan Henshaw.





## **SEG Foundation Establishes Barbara S. McBride Memorial Scholarship**

Barabra Sue McBride passed away in July following a brief illness. She was born on September 27, 1956 in Littlefield, Texas. Ms. McBride was Vice President for South America for ExxonMobil Exploration Company, headquartered in Houston, Texas. She joined Exxon in 1978 and has held a number of assignments in exploration, production, and planning in the U.S. and abroad.

Those who knew Barbara were inspired by her common sense and vigor. Ms. McBride was a member of the Society of Exploration Geophysicists and the American Association of Petroleum Geologists. She served as Chairman of the SEG Scholarship Committee and Foundation Trustees and was named an "Outstanding Young Woman of America."

Your tax-deductible contribution may be sent to the SEG Foundation, P.O. Box 702740, Tulsa, OK 74170-2740. All contributions will be matched under the SEG Foundation's "Double Impact Program"

# **The Next Wave in Reservoir Monitoring: The Instrumented Oilfield**

by David Lumley, 4th Wave Imaging

Several technologies are advancing to better monitor and optimize reservoir production. These include time-lapse surface and borehole seismic, shear wave technology, directional drilling, permanent downhole sensors, intelligent well completions, fiber optics, remote control operations, data management and internet technology, shared earth models to extract and archive reservoir knowledge, data visualization, parallel computing, and rapid modeling, processing, analysis and decision-making tools. These diverse technologies are converging toward the target of real-time monitoring and optimization of reservoir production: the instrumented oilfield.

In the geophysical world, time-lapse seismic technology has been rapidly advancing over the past few years. Several industry case studies have been presented that show the capacity of 4D seismic to monitor injected fluid fronts, locate bypassed oil, map pressure compartmentalization, and delineate the sealing or leaking flow properties of faults. High resolution time-lapse seismic monitoring has been performed in the borehole, in VSP and crosswell geometries. Together, time-lapse surface and borehole seismic techniques have the possibility to cover multiple reservoir scales in terms of both spatial and time-lapse resolution. Permanent installation of receiver arrays, originally motivated by increased repeatability and signal-to-noise energy, have the potential to offer useful benefits in data acquisition cost reduction and real-time surveying flexibility. Since multicomponent receivers can be installed for nearly the same price as acoustic sensors, the additional information from shear waves can be useful for monitoring pressure fronts, in situ stress, and real-time fracturing. However, many hardware, software, and logistical issues remain before permanent seismic arrays become a practical reality.

In the engineering world, downhole instrumentation and borehole technol-

ogy have been experiencing rapid development. Downhole sensors are available to measure reservoir state variables such as pressure, temperature and saturation. These sensors can be permanently installed and can feed continuous data by fiber optics to remote control operation centers at the surface. Directional drilling can be aided in real-time by logging-while-drilling (LWD) measurements and seismic drill-bit steering. Smart wells with multiple-level intelligent completions can drain multiple oil reservoirs in an optimal manner by measuring flow rates and pressure during production, and reconfiguring the completion specs on the fly to maximize recovery. More field pilot tests are needed to advance the technology.

On the combined geoscience and engineering analysis front, these complex and real-time monitoring systems will produce a huge volume of data that requires intelligent processing to extract reservoir knowledge and value. How will the flow of data be transmitted and what portion will be storable? How will the information content-the reservoir knowledge-be extracted from the data stream and archived in a continuously evolving and updated reservoir model? The solutions to these challenges hinge on evolving technologies in data management, information technology, high-speed networks, internet communications, rapid data visualization, parallel computing, the shared earth model concept, and integrated modeling, processing, analysis and decision-making tools. Much research remains to be done; we need to get out there, put these systems in the ground, test them, and learn as we go.

### **Biography for Dr. David E. Lumley, Distinguished Lecturer**

David E. Lumley is President & CEO of 4th Wave Imaging Corp., a seismic imaging R&D start-up company offering expert solutions and services in 4D

*The Next Wave... continued on page 10*

time-lapse seismic reservoir monitoring and multicomponent seismic data analysis. His previous work experience includes a position as a senior staff research scientist with Chevron Petroleum Technology, and research and operations assignments with Arco Research, Mobil R&D Corp., and Mobil Canada. Prior to that, David worked as a seismic crew leader for Western Geophysical on marine seismic vessels in the Gulf of Mexico and the North Atlantic.

David received a BS and MS from the University of British Columbia, and a PhD from Stanford University. As part of Professor Jon Claerbout's Stanford Exploration Project, David conducted pioneering research work on 4D seismic analysis, including his doctoral thesis: "Seismic Time-Lapse Monitoring of Subsurface Fluid Flow". His expertise and research excellence in 4D seismic

reservoir monitoring at Stanford was recognized with one of the first SEG Karcher Awards in 1996. David continues to hold a courtesy position as a consulting professor with Stanford University.

Dr. Lumley is very active within the SEG. He has served as an Associate Editor (1995-99) for *GEOPHYSICS*, and on several technical committees including the Joint SPE/SEG Research Forum Committee (1996), SEG Annual Meeting Technical Program Committees (1997-98), and the SEG Development & Production Forum (1999). He is currently a Reviewer for *GEOPHYSICS* and *THE LEADING EDGE*, serves on the SEG Research Committee, and is chair of the 2001 SEG Summer Research Workshop. David is also a member of AGU, SIAM, and SPE.

Dr. Lumley has published his work in several technical journals, and pre-

sented numerous papers and invited keynote addresses at technical conferences, workshops and forums. His theoretical and practical contributions cover a wide range of topics including 4D seismic reservoir monitoring, multicomponent seismic data analysis, 3D prestack migration, AVO, multi-parameter inversion, multiple suppression, rock physics, seismic modeling from flow simulation, methane hydrates, and parallel computing. Dr. Lumley is the recipient of the Best Paper Awards at the SOVG Conference in Caracas (1998), the SEG Annual Meeting in Dallas (1997), and the SPIE Conference in Mathematical Geophysics, San Diego (1994). Dr. Lumley was recently honored to serve as an SPE Distinguished Lecturer (1998-1999).



## **University of Houston Department of Geosciences Lecture**

Date: Wednesday, November 1  
Location: University of Houston Science and Research -1 Bldg., Room 117  
Time: 7:00 p.m.

**Speaker:**

Dr. David Lumley, President and CEO of 4th Wave Imaging Corp. and AAPG-SEG Distinguished Lecturer for Fall 2000

**Title:**

"The next wave in reservoir monitoring: The instrumented oilfield."  
The public is invited.

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# NOVEMBER 2000

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			1 University of Houston Department of Geosciences Lecture University of Houston Science and Research - 1 Bldg., Room 117 7:00 p.m.	2	3 HGS/GSH Shrimp Peel Sam Houston Race Park 5:30 p.m.	4
5	6	7	8 Dry Hole Seminar Auditorium Shell Plaza 8 a.m.	9	10 NEWSLETTER DEADLINE	11
12	13	14	15 Data Processing SIG PGS HC-2 4:30 p.m.	16 Potential Fields SIG HESS Bldg. 5430 Westheimer 5:30 p.m.  GAH Tour 1406 Kirby	17	18
19	20 Robert E. Sheriff Lecture Series 9999 Westheimer 5:30 p.m.	21 Technical Luncheon 5430 Westheimer H.E.S.S. Bldg. 11:30 a.m.	22	23 THANKSGIVING DAY	24	25
26	27	28	29	30		

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