



# Geophysical Society of Houston

VOL. 35, NO. 9

NEWSLETTER

APRIL 2001

## Spring 2001 SEG Distinguished Lecture

Date: April 17, 2001  
Location: HESS Building  
Time: 11:30 a.m.  
Cost: \$20

### Breaking Down Barriers to Effective Use of Multicomponent Seismic Data



Dr. Robert H. Tatham  
Department of  
Geological Sciences  
The University of Texas  
at Austin

For the past twenty-five years, seismic shear wave data have been applied in various parts of the petroleum exploration and production industry. Since direct sources of shear-wave energy were often deployed, data acquisition was generally limited to land locations. Further, concerns about receiver coupling also limited recording of mode-converted shear waves from conventional sources to land environments. In recent years,

multicomponent seismic data acquisition has been successfully extended into the marine environment through 3-C and 4-C bottom cable recording using conventional air-gun sources. Mode-converted shear-wave energy has been quite effectively recorded and processing capabilities are rapidly evolving. The actual interpretation and application of these data, however, has not experienced as rapid a rate of progress as the evolution of acquisition and processing technology.

This lecture focuses on where we stand as an industry in the application of multicomponent data, experience of end users and how they can incorporate multicomponent data into their interpretations, and the status of effective interpretive models required to fully exploit the potential of the information contained in multicomponent seismic data. This includes a review of published results demonstrating the existence of many applicable interpretive models and how they have been successfully applied. Further improvement of communications among tech-

nology implementers and developers will reduce apparent barriers to widespread application of these technologies.

One barrier to widespread application of 4-D P-wave and shear (P-SV) wave data acquired in marine environments has been limited experience and understanding by asset team interpreters of just how to use these new types of data offered by technology developers. This limitation in actual application of data may be a result of either the paucity of effective interpretive models or a failure of technology developers to communicate potential application techniques to the ultimate users. Some applications, such as using shear-wave data to image through gas clouds, have received almost immediate acceptance by the end users, while other applications, such as lithology and pore-fluid discrimination and prediction, have been slower to be widely applied.

A review of published applications addressing some of the specific concerns of interpreters and end users of conven-

*SEG Lecture continued on page 3*

**Annual Honors and Awards Banquet**  
**Thursday, May 3, 2001**  
**Lakeside Country Club**

**See Page 12**

### I N S I D E T H I S I S S U E

<b>GSH Meetings</b> _____	
SEG Lecture	
April 17 .....	1
Technical Breakfast	
April 18 .....	4
SIG Meetings .....	5

<b>Articles and Comments</b> _____	
Offshore Technology Conference .....	8
The Society of Petroleum Evaluation Engineers .....	11
Annual Honors and Awards Banquet .....	12
SEG - GSH Spring Symposium .....	17

**GEOPHYSICAL SOCIETY OF HOUSTON**

**Joan Henshaw, Office Manager • 7457 Harwin Drive, Suite 301 • Houston, Texas 77036 • Office Hours 8 a.m. - 5 p.m.**

**Phone: (713) 785-6403 • Fax: (713) 785-0553 • Event Reservations Number: (713) 917-0218**

**email: [reservations@hgs.org](mailto:reservations@hgs.org) • website - <http://www.seg.org/sections/gsh/gshhome.html>**

**GSH Board of Directors = GSH Executive Committee + SEG Section Representatives**

		<b>PHONE</b>	<b>FAX</b>	<b>E-MAIL</b>
PRESIDENT .....	John Sumner .....	713-431-6796 .....	713-431-6094 .....	<a href="mailto:john.r.sumner@exxon.sprint.com">john.r.sumner@exxon.sprint.com</a>
Corp. Relations .....	Pat Starich .....	281-423-5036 .....	281-423-5766 .....	<a href="mailto:patrick.j.starich@exxon.sprint.com">patrick.j.starich@exxon.sprint.com</a>
Historian .....	Art Ross .....	281/360-9331 .....		<a href="mailto:art@dellnet.com">art@dellnet.com</a>
Honors & Awards .....	Wulf Massell .....	713/650-3820 .....	713/659-3735 .....	<a href="mailto:wulf@epicgeo.com">wulf@epicgeo.com</a>
Museum .....	Tom Fulton .....	281-242-1806 .....		<a href="mailto:etinsl@flash.net">etinsl@flash.net</a>
Nominating .....	Pat Starich .....	281-423-5036 .....	281-423-5766 .....	<a href="mailto:patrick.j.starich@exxon.sprint.com">patrick.j.starich@exxon.sprint.com</a>
PRES.-ELECT .....	Dave Agarwal .....	713/650-0325 .....	713-650-3822 .....	<a href="mailto:Dave0836@aol.com">Dave0836@aol.com</a>
Academic Liaison .....	Hua-Wei Zhou .....	713/743-3424 .....	713/784-7906 .....	<a href="mailto:hzhou@uh.edu">hzhou@uh.edu</a>
Advisory .....	Lee Lawyer .....	281/531-5347 .....	281/531-5347 .....	<a href="mailto:LLAWYER@prodigy.net">LLAWYER@prodigy.net</a>
Employment Ref .....	Sam LeRoy .....	281/556-9766 .....	281/556-9778 .....	<a href="mailto:earthview@aol.com">earthview@aol.com</a>
Finance .....	Phil Inderwiesen .....	713/954-6244 .....		<a href="mailto:inderpl@texaco.com">inderpl@texaco.com</a>
Office .....	Hugh Hardy .....	713/729-9208 .....	713/726-0456 .....	<a href="mailto:mghwh@aol.com">mghwh@aol.com</a>
Volunteers .....	Jerry Donalson .....	713-513-2164 .....		<a href="mailto:jdonalson@houston.geoquest.slb.com">jdonalson@houston.geoquest.slb.com</a>
FIRST VP .....	Roy E. Clark .....	281-423-5651 .....	281-423-5891 .....	<a href="mailto:roy.clark@exxon.sprint.com">roy.clark@exxon.sprint.com</a>
Continuing Education .....				
Speakers .....	Roy E. Clark .....	281-423-5651 .....	281-423-5891 .....	<a href="mailto:roy.clark@exxon.sprint.com">roy.clark@exxon.sprint.com</a>
Tech Breakfasts .....	Scott Sechrist .....	281/856-8029 .....	281/856-7445 .....	<a href="mailto:acoustic@airmail.net">acoustic@airmail.net</a>
Tech Luncheons .....	Keith Matthews .....	281/275-7500 .....	281/275-7660 .....	
Tech Committee .....	Lloyd Weathers .....	713-599-9900 .....		<a href="mailto:weathers@texcrude.com">weathers@texcrude.com</a>
SIGS .....				
Data Processing .....	Karl Schleicher .....	713/782-1234 .....		<a href="mailto:karl@geodev.com">karl@geodev.com</a>
Near Surf Geophysics .....	Mustafa Saribudak .....	281-370-7066 .....	281-370-7099 .....	<a href="mailto:ega@pdq.net">ega@pdq.net</a>
Interpretation .....	Randy Hoover .....	713/546-4407 .....	713/546-8685 .....	<a href="mailto:RandyHoover@PennzEnergy.com">RandyHoover@PennzEnergy.com</a>
Potential Fields .....	Afif Saad .....	281/342-8575 .....		<a href="mailto:AfiffSaad@netscape.net">AfiffSaad@netscape.net</a>
.....	Bob Van Nieuwenhuse .....	281/679-2208 .....		<a href="mailto:Bob.VanNieuwenhuse@pgs.com">Bob.VanNieuwenhuse@pgs.com</a>
Res. Geophysics .....	Fa Dwan .....	713/245-7352 .....		<a href="mailto:Dwan@shellus.com">Dwan@shellus.com</a>
Reality Center .....	Roice Nelson .....	281-579-0172 .....	281-579-2141 .....	<a href="mailto:rnelson@walden3d.com">rnelson@walden3d.com</a>
SEC. VP .....	Claire Bresnahan .....	713/880-5910 .....		<a href="mailto:ht_cpcxb@huber.com">ht_cpcxb@huber.com</a>
Annual Meeting .....	Jim Moulden .....	281/293-5711 .....	281/293-2015 .....	<a href="mailto:james.k.moulden@usa.conoco.com">james.k.moulden@usa.conoco.com</a>
Awards Banquet .....	April Robertson .....	713-783-7837 .....	713-783-9780 .....	<a href="mailto:april@diamondg.com">april@diamondg.com</a>
Golf Tournament .....	George Lauhoff .....	281-275-7623 .....	281-275-7550 .....	<a href="mailto:glauhoff@fairfield.com">glauhoff@fairfield.com</a>
Salt Water Bass Tournament .....	Bobby Perez .....	281-240-1234 .....		<a href="mailto:r_perez@jdkseis.com">r_perez@jdkseis.com</a>
Shrimp Peel .....	Lee Shelton .....	713/789-2444 .....	713/789-4449 .....	<a href="mailto:LShelton@scacompanies.com">LShelton@scacompanies.com</a>
Sporting Clays .....	Steve Bircher .....	713/780-8334 .....	713/780-8335 .....	<a href="mailto:sbircher@hrs-us.com">sbircher@hrs-us.com</a>
Tennis Tournament .....	Joe Jones .....	281/438-5626 .....	281/682-6928 .....	
SECRETARY .....	Steve Danbom .....	713/937-7530 .....		<a href="mailto:steve.danbom@worldnet.att.net">steve.danbom@worldnet.att.net</a>
Directory .....	Jim Wood .....	281/358-6358 .....	281/358-6398 .....	<a href="mailto:woodc@flash.net">woodc@flash.net</a>
GSH Membership .....	Hugh Hardy .....	713/729-9208 .....	713/726-0456 .....	<a href="mailto:mghwh@aol.com">mghwh@aol.com</a>
Ladies Auxiliary .....	Georgeann Massell .....	281-353-7894 .....		
.....	Marinell Williams .....	713-467-4517 .....		
.....	Donna Parrish .....	281-859-8088 .....		
OTC Rep .....	Alf Klaveness .....	713/468-5123 .....	713/468-0900 .....	
SEG Membership .....				
TREASURER .....	Shane Coperude .....	281-275-7500 .....	281-275-7660 .....	<a href="mailto:scoperude@fairfield.com">scoperude@fairfield.com</a>
EDITOR .....	Patty Cardwell-Swords .....	713/783-7837 .....	713/783-9780 .....	<a href="mailto:pattyc@diamondg.com">pattyc@diamondg.com</a>
Company Contacts .....	Scott Sechrist .....	281/856-8029 .....	281/856-7445 .....	<a href="mailto:acoustic@airmail.net">acoustic@airmail.net</a>
Electronic Pub .....	Scott Sechrist .....	281/856-8029 .....	281/856-7445 .....	<a href="mailto:acoustic@airmail.net">acoustic@airmail.net</a>
Photography .....	John Freeland .....	713-659-2618 .....		
Publicity .....	Scott Sechrist .....	281/856-8029 .....	281/856-7445 .....	<a href="mailto:acoustic@airmail.net">acoustic@airmail.net</a>
Training Notices .....	Lloyd Weathers .....	281/556-5335 .....	281/556-5335 .....	<a href="mailto:lloyd_weathers@yahoo.com">lloyd_weathers@yahoo.com</a>
PAST PRES .....	Pat Starich .....	281-423-5036 .....	281-423-5766 .....	<a href="mailto:patrick.j.starich@exxon.sprint.com">patrick.j.starich@exxon.sprint.com</a>
PRIOR PAST PRES .....	Bob Tatham .....	713/954-6027 .....	713/954-6113 .....	<a href="mailto:tatharh@texaco.com">tatharh@texaco.com</a>
SEG SECTION REPS* .....	Dan Ebrom .....	281-366-3011 .....	281-366-7561 .....	<a href="mailto:ebromda@bp.com">ebromda@bp.com</a>
.....	Young Kim .....			
.....	Alf Klaveness .....	713/468-5123 .....		
.....	Art Ross .....	281/360-9331 .....		<a href="mailto:art@dellnet.com">art@dellnet.com</a>
.....	Dale Bird .....	281-463-3816 .....		<a href="mailto:dale@birdgeo.com">dale@birdgeo.com</a>
.....	Hugh Hardy .....	713/729-9208 .....	713/726-0456 .....	<a href="mailto:mghwh@aol.com">mghwh@aol.com</a>
.....	Wulf Massell .....	713/650-3820 .....	713/659-3735 .....	<a href="mailto:wulf@epicgeo.com">wulf@epicgeo.com</a>
Alternate SEG Sec. Reps .....	Lee Lawyer .....	281/531-5347 .....		<a href="mailto:LLAWYER@prodigy.net">LLAWYER@prodigy.net</a>
.....	Richard Verm .....	713/782-1234 .....	713/782-1829 .....	<a href="mailto:richard@geodev.com">richard@geodev.com</a>
.....	Roice Nelson .....	281-579-0172 .....	281-579-2141 .....	<a href="mailto:rnelson@walden3d.com">rnelson@walden3d.com</a>

# 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 at 713/783-7837.

## 2000 GSH Newsletter Deadlines

Issue ..... May 2001  
**Deadline .. April 13, 2001**

Issue ..... August 2001  
**Deadline .. July 13, 2001**

# NOTICE TO MEMBERS

The March 8, 2001 report of the GSH Membership Committee listed 94 new members. That figure added to the existing members totaled 1967 total members. This figure leaves the GSH only 33 members short of the objective total of 2000. However, when the 224 delinquent members which exist as of this date are deducted from the 2000 objective, it leaves us 257 members short of our goal. **IF YOU ARE ONE OF THE DELINQUENTS - PLEASE - SEND YOUR RENEWAL DUES CHECK OR CALL THE OFFICE AT (713)785-6403 WITH YOUR CREDIT CARD INFORMATION.** The 2001 Membership directory is currently being prepared and, if you are delinquent, you will not be listed in the directory.

Thank you,  
Hugh Hardy

# 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>

*SEG Lecture continued from page 1*

tional P-P and newer P-SV seismic data may help us break down the perceived barriers to application of all the seismic data available to solve exploration, production and reservoir characterization and monitoring problems. Overall, successful application of multicomponent data to solve a variety of new problems will depend upon dissemination of not only new technology but also the information we already have from existing technology.

## Biography

Dr. Robert Tatham is a professor of exploration geophysics in the Department of Geological Sciences at the University of Texas at Austin where he holds the Shell Oil Companies Centennial Chair in Geophysics. His 30 years of industry experience includes research and exploration positions at Texaco and GeoSource.

In 1967, Dr. Tatham completed his B.S. in physics from California State University at Northridge and immediately began his career in geophysics with Texaco. Initial activities at Texaco included processing of digital seismic data (then a new technology) and progressing to interpretation of data from east Texas, south Texas, and the Gulf of

Mexico. While working in this early assignment, Dr. Tatham studied at the University of Houston and completed his M.S. in applied geophysics in 1970. A year later, he began studies at the Lamont-Doherty Geological Observatory of Columbia University and was awarded his Ph. D. in 1975.

Dr. Tatham is actively involved in SEG activities. He has served as an Associate Editor for *GEOPHYSICS* (1990-1997), has been chair of the SEG Research Committee, where he continues active participation, and has served as the President of the Geophysical Society of Houston (1997-1998). Continuing activities include involvement with integrating geophysical, geological and reservoir engineering activities.

Dr. Tatham has published extensively on a variety of topics in exploration geophysics, including co-authoring the book "Multicomponent Seismology in Petroleum Exploration", currently in its third printing. His dozens of publications include not only numerous papers on shear wave topics, but data processing and reservoir geophysics as well. He is an active member of the SEG, GSH, AAPG, SSA, AGU and SPWLA.

# Technical Breakfast

Date: Wednesday, April 18  
Location: Anadarko Petroleum;  
17001 Northchase  
Time: 7:00 a.m.

**Title:**  
The Inverse Problem: Predicting Reservoir Properties from Seismic Data

**Speaker:**  
T. B. Berge, Forest Oil International;  
timb@forestoil.com

The Scientific Method involves performing an experiment with a set of known variables and observing the results. This is called a Forward Model. The Forward Model is repeatable and the results are always the same. When we collect geophysical data, Seismic, Gravity data, Magnetic data, MT or whatever, we are performing an experiment that is a Forward Model. When we interpret seismic data, we don't know exactly what the subsurface conditions were, but we do know what the experiment was and we know the results. From this information we have to 'backward infer' the subsurface conditions. This process is known as inverse modeling. One major difference between forward and inverse modeling is that there are many possible solutions to the inverse model that will give the same results. In fact, all interpretation is a form of inverse modeling and that is why there is uncertainty in geological interpretation.

Methods of predicting reservoir properties from seismic (and well) data are generally forms of inverse modeling or called Inversions. There are generally 3 types of inversion techniques;

- 1) Acoustic Inversion: Can predict Density, Velocity, and Porosity
- 2) Elastic Inversion: Lithology, net pay, and fluid or gas content from incompressibility, rigidity, and Poisson's ratio
- 3) Shape Attribute inversion

Each method from 1 to 3 involves more information as input, and provides progressively more reservoir information as output.

Acoustic inversion uses only the stacked P-wave data and is often called Recursive Inversion. Basically, it is a run-

ning sum of the changes in impedance or the integration of the trace reflection coefficients. Elastic inversion additionally uses shear wave data. Shape attribute Inversion requires well control and may use P or S wave or gather data, and will often be very statistically based and may use AI or Neural Networks. Most of the service contractors offer variations of most of these types of inversions, and there are some differences in approach. There is also excellent inversion software available.

There is no 'best' Inversion technique; there are a number of factors that will influence results. The right choice may depend on the type of data available, the area studied, budget and time constraints, or other factors. In the early exploration stage recursive inversion may be used, as it requires no well control. Later, as wells are drilled, elastic or shape-attribute inversion should be used to take advantage of the additional information added by well control. Any inversion may be scaled or calibrated to existing well control.

One can reduce risk by modeling many different geologic conditions to understand the possible range of valid solutions. Also, if a model can be verified by using several different inversion methods on the data, risk is reduced. Alternatively, if a model is not confirmed by one inversion method, it should be discarded.

The two basic limitations of the Inversion method should always be kept in mind and those are that inversion does not have a unique solution, and that seismic is a band-limited dataset. Bandlimitation has two main consequences; it's upper frequency limits mean that thin beds cannot be resolved, and it's lack of DC component means that inversion results must be calibrated to real well control and may be strictly valid only for a certain depth range.

Nevertheless, Inversion offers us a way to get more information from our data, and offers the possibility to fairly accurately predict reservoir properties directly from seismic data. This has been a major goal for many exploration and production geophysicists. It is now possible to accurately measure reservoir

volumes, predict well productivity, optimize complex development plans, map meandering channel complexes, carbonate reefs, deltas, dune fields or any other type of stratigraphic feature, monitor water floods, and map field depletion.

## **Biography** **Timothy B. Swearingen Berge**

Born Feb. 9, 1953 in Des Moines, Iowa to Robert and Patricia Swearingen. His father was a Marine Corps Officer and the family moved often. His parents later divorced and his mother remarried Paul G. Berge who adopted him. He graduated from High School at Middleton High School in Middleton Wisconsin, a suburb of Madison Wisconsin. He worked at the University of Wisconsin as a research assistant in High Energy Physics and worked on E259 under Drs. Pondrem and Prepost and helped in the discovery of the Pion, a sub-atomic particle. He helped construct and run the experiment at Argonne National Laboratory in Chicago and analyzed the collected data at Madison. He attended Beloit College and later transferred to the University of Wisconsin, Madison Wisconsin where he earned a Bachelor of Science degree in Geology and Geophysics in 1976. He became interested in Geology through an Uncle, Dr. Lowell Laudon, who was a professor at UW and lived nearby. Lowell influenced several generations of UW geologists. At UW he was a LaFollet Scholar, assistant curator of the Geology Museum, and worked as an assistant to the Ross Ice Shelf. From 1976 to 1980 he worked as a roughneck, mudlogger, and owned and operated a mudlogging service company. In 1979 he enrolled at the University of Texas at Austin where he earned a Master of Arts in Geology in 1981. While at UT he was a teaching assistant and taught Optical Mineralogy and Petrology, Field Methods, and Introductory Geology. His thesis was in Structural Geology under the direction of Dr. Bill Muelhberger in the Chihuahua Tectonic Belt. In 1981 He joined Exxon Co. USA where he worked for 17 years in Denver, Midland, Bogota

*Technical Breakfast continued on page 5*

Colombia, and Houston. He worked for Corpoven in Puerto La Cruz, Venezuela as a Technical Advisor, and with Apache Corp. on the Zhao Dong development project in China. He has been Chief Geophysicist at Forest Oil Inter-

national for the past 3 years. He has expertise in the areas of Structural Geology, Sequence and seismic stratigraphy, Workstation applications, and 3D interpretation. He has worked internationally for over 15 years in the Western Cordillera from Canada to Chile, most of North and South America, Eu-

rope, parts of Africa, Russia, and Asia. He is the author and co-author of numerous publications. He lives in Magnolia Texas, has been married for 22 years to Victoria Berge and has 4 children, Eamon (21), Bryan (18), Dana Kay (16), and Nikolai (9).

## SIG Meetings

### DATA PROCESSING

The data processing SIG arranges monthly technical presentations for the Geophysical Society. Typically attendance is over sixty people. Meeting place varies, but recently Bill Symes of Rice University has offered their excellent facility in Duncan Hall. We intend to use this location more in the future and appreciate this generous offer.

#### APRIL MEETING

Theme: Anisotropy

Date: Wednesday,  
April 18, 2001  
Time: Social 4:30  
Presentations  
5:00 to 6:30  
Cost: NONE

Organizers: Turgut Ozdenver,  
GeoCenter  
Karl Schleicher, Geophysical  
Development Corporation  
Refreshments: John Clough, Veritas  
Training

Location: McMurftry Auditorium,  
Duncan Hall, Rice University

Directions: Enter Rice campus at corner of Main and Sunset Blvd. Park to the right of the large lawn. Duncan Hall is on the right. Overflow parking is available on the east side of the main administration building.

Speaker 1: Steve Kelly, PGS Seres  
Title: The Identification of Fractures and Inversion for their Properties from Multicomponent Data High Production Environments

Speaker 2: Bee Bednar, Advance Data Solutions

Title: Seeing the Invisible: Most Energetic Anisotropic Traveltimes in Seismic Imaging

#### Abstract:

The Identification of Fractures and Inversion for their Properties from Multicomponent Data

By Steve Kelly, PGS Seres

In recent years, there has been much interest in the use of multicomponent seismic technology to identify the location, intensity and direction of fractures in hydrocarbon reservoirs. These objectives have already been met, at least in part, in a number of field data studies. Early experiments used shear-wave sources. It was recognized that the interpretability of the resulting, shear-wave sections could be enhanced by introducing kinematic manipulations in order to unravel the cross-mixing introduced by birefringence. As a bonus, these procedures provided all the information necessary to determine both the magnitude and the direction of the weak microfracturing that caused the birefringence. This transmission-related information also proved to be useful for defining the fracture directions in reservoir rock, provided that the principal directions were the same as those for the microfracture-bearing overburden. Later efforts exploited the unique character of shear-wave reflectivity to directly determine lateral variations in fracture concentration. More recently, marine OBS studies and budget-minded land surveys have attempted to use birefringence measurements from the shear-wave leg of mode conversions (C waves) in order to extract fracture information. There

is the additional hope that C-wave reflectivity can be used with the same effectiveness as shear-wave reflectivity for high-resolution fracture delineation. Finally, in an unexpected twist of fate, our acquisition/processing paradigm has come "full circle," as the utility of pure P-wave information is once again being considered for fracture analysis.

In this seminar, I discuss an inversion strategy that I developed several years ago when I was a student at UTD. The strategy is a result of conclusions that I developed while analyzing some commercially-processed, 2D, post-stack data that had been acquired in SE Texas using a compressional source and a line of multicomponent geophones. The inversion integrates an amplitude-based procedure that can provide a high-resolution measure of fracture properties with an automated, correlation-based, kinematic technique that provides fracture estimates with low spatial resolution. The theory for the dynamic part of the inversion is based on the observation that localized pockets bearing plane-parallel, vertical fractures will yield anomalous mode conversions from wave type P to wave type SH in a layered medium. The inversion can be performed on either pre-stack or post-stack data, but it requires that the reflectors be approximately flat. Preprocessing is required to remove the imprint of shear wave birefringence from the data prior to the amplitude-based inversion. Examples are provided using both synthetic data and the Texas field recordings.

#### Biography Steve Kelly

Steve has worked in the energy industry for the last 26 years, first as a

*Data Processing continued on page 6*

nuclear engineer and more recently as a geophysicist. His educational background includes a B.A. in Physics from the University of Chicago, an M.E. in Nuclear Engineering from the University of Virginia, an M.S. in Geophysics from The University of Washington and a Ph.D. in Geoscience from The University of Texas at Dallas. His employment experience in geophysics has spanned the areas of processing and research for both GPR and seismic data. Additional, "eclectic" ventures have included algorithm development for core neutronics calculations in nuclear reactors and the development of investment strategies using inverse theory. He has worked for PGS for the last four years and is currently a Senior Research Geophysicist in the Seres Division. His research interests include elastic, inelastic and anisotropic wave propagation effects, imaging strategies, inverse theory and the use of statistical hypothesis tests in processing applications. He is a member of GSH and SEG.

### Abstract

Seeing the Invisible: Most Energetic Anisotropic Traveltimes in Seismic Imaging

By Bee Bednar, Tariq Alkalifah

The recent advent of fast, inexpensive personal computers (PC's), is revolutionizing modern seismic-depth imaging. Prices for supercomputer style computation, graphical display, and data storage, halve every eighteen months.

Modern networking technologies couple inexpensive PC's into powerful clusters that easily solve problems once thought intractable on far more expensive machines. It is now feasible to utilize accurate, computationally intensive algorithms to calculate multi-component traveltimes tables in complex transversely isotropic media with arbitrary axis of symmetry. Data are efficiently imaged using full-waveform Kirchhoff or more accurate downward continuation techniques. Full waveform synthetics can be generated economically. While these developments have been dramatic, what has not changed is our need to understand and differentiate between important and unimportant parameters. We must place exploration value on new

technologies. In this talk we take a small step toward this goal. We focus on parameterization of anisotropic media and adaptive most-energetic raytracing in the result. We discuss the construction of anisotropic models and, through synthetics, show that even in weakly anisotropic cases dramatic results can be expected. We argue that the next generation in seismic imaging will include the routine estimation and utilization of elastic earth parameters.

---

## NEAR SURFACE

Where: Fugro-South, 6100 Hillcroft Avenue, Conference Room #160  
When: April 18, 2001  
Time: Social 5:30 pm  
Presentation 6:00 pm

Speaker: Dr. Chuck Connor

Contact: Mustafa Saribudak, Chair Near-Surface SIG, at 281-370-7066; ega@pdq.net

"Geophysics in Near-Real-Time"  
By Dr. Chuck Connor, Ph.D.

### Abstract:

Geophysicists require state-of-the-art, real-time, high-speed data acquisition and data visualization. Computer science technologies can provide fast, robust, multi-threaded, modular, network-distributed real-time and near real-time systems. These tools provide a path toward high resolution, high quality control surveys. Numerous examples will be provided of application of real-time visualization to shallow (environmental) geophysical surveys. This talk will provide an overview of a range of near-real-time data visualization methods, and illustrate how the applications of these methods will drive environmental geophysics toward highly automated data collection methodologies.

## BIOGRAPHY

### a. Professional Preparation

Ph.D. in Geology, Dartmouth College, Hanover, NH, October, 1987.

M.S. in Geology, Dartmouth College, Hanover NH, June, 1984.

B.S. in Geology, Univ. of Illinois, Urbana IL, January, 1982.

B.A., Anthropology, Univ. of Illinois, Urbana, IL, January, 1982.

### b. Appointments

Principal Scientist, Center for Nuclear Waste Regulatory Analyses, Southwest Research Institute (1998-present)

Senior Research Scientist, Center for Nuclear Waste Regulatory Analyses, Southwest Research Institute (1993-1998)

Associate Professor, Florida International University, Miami, FL (1992-1993)

Assistant Professor, Florida International University, Miami, FL (1987-1992).

### c. Selected publications

Connor, C.B., and S. Sandberg, 2001, Characterization of the Edward's Aquifer using Electromagnetic and magnetic methods, South Texas Geology, Bulletin, in press.

La Femina, P.C., C. Connor, J. Stamatakos, and D. Farrell, 2001, Structure of an active normal fault delineated by electromagnetic methods, Bulletin of Environmental and Engineering Geology, in press.

Connor, C.B., B. Hill, B. Winfrey, N. Franklin, P. La Femina, 2001, Estimating volcanic hazards from tephra fallout, Natural Hazards Review, 2: 33-42.

Connor, C.B., B. Hill, P. LaFemina, M. Navarro, and F.M. Conway. 1996. Soil <sup>222</sup>Rn pulse during the initial phase of the June-August 1995 eruption of Cerro Negro, Nicaragua. J. Volcanol. Geotherm. Res., 73: 119-127.

Connor, C.B., S. Lane-Magsino, J.A. Stamatakos, R.H. Martin, P.C. LaFemina, B.E. Hill, and S. Lieber, 1997, Magnetic surveys help reassess volcanic hazards at Yucca Mountain, Nevada, Eos, Transactions of the American Geophysical Union, 78(7): 73, 77-78 (Lead article).

Connor, C.B., J. Stamatakos, D. Ferrill, B.E. Hill, G. Ofoegbu, F.M. Conway, B. Sagar, and J. Trapp, 2000, Geological controls on patterns of basaltic volcanism: Application to a volca-

Near Surface continued on page 7

nic hazards assessment at Yucca Mountain, Nevada, *J. Geophys. Res.*, 105: 417-432.

Hill, B.E., C.B. Connor, M.S. Jarzamba, and P.C. La Femina, 1998, 1995 eruptions of Cerro Negro, Nicaragua and risk assessment for future eruptions, *Geol. Soc. Am. Bull.*, 110: 1231-1241.

## RC-SIG NEWS

The next RC-SIG meeting will be held May 9th and 10th at the Virtual Environment Application Center (VRAC) at Iowa State University (ISU) in Ames, Iowa. ISU has the only publicly known C-6 in North America (a six wall CAVE(TM) or Computer Aided Visualization Environment).

Those interested in following the

organization committee meetings, seeing results from previous meetings, or becoming involved in the RC-SIG can do so at <http://www.walden3d.com/rcsig>. Those interested in presenting case histories or who have questions about the RC-SIG contact the GSH representative, Roice Nelson at [rnelson@walden3d.com](mailto:rnelson@walden3d.com) or call 281.579.0172.

---

# Membership Report

## The GSH would like to welcome it's newest members:

### ACTIVE

Louis Berent  
Kamaluddin Bhuyan  
Sandra Boyd  
Joseph Brock  
Stephen Burgess  
Tom Caldwell  
Kerry Campbell  
Luis Canales  
Jing Chen  
Walter Denny, III  
Robert Estill  
Timothy Fasnacht  
Hershal Ferguson  
Jonathan Finstein  
Eric Gardner  
Stephan Gelinsky  
Michael Greenspoon  
Rafael Guerra  
Daniel Heinze  
Hugh Hodge  
Roger Holeywell  
William Howieson  
Paul Hunt  
Lorena Jiminez

Ching-nan Kao  
Kenneth Lake  
Richard Lee  
Zhimiing Li  
Alfred Liaw  
Senren Liu  
Eduard Maili  
John McKosky  
Christos Mazis  
Joerg Meyer  
David Monk  
Clara-Luz Mora  
Jeff Pan  
John Polasek  
Santi Randazzo  
David Rensink  
John Robinson  
David Schlichtemeier  
Timothy Schroeder  
Gehrig Schultz  
Paul Sease  
Mario Serna  
Stefan Seyb  
Lester Sisemore  
Neil Snapp  
Robert Springman

Thomas Stiteler  
XinYi Sun  
Kenneth Swift  
Julie Taylor  
Connie Vanschuyver  
Steven Waddell  
Darrell Weller  
K.C. Whittemore  
Christopher Whitten  
Thomas Wilker  
Shenayu Wu

### ASSOCIATE

Thomas Burch  
Michael Carnes  
Mike Christiansen  
Melissa Coleman  
Derrick Crisp  
Edward Eble  
Bradley Elliott  
Alan Fuqua  
Stephen Gabbert  
Emilio Garciadaro  
Christianne Gell  
Byron Golden

Jeffrey Grana  
Philip Hilton  
Greg Huey  
Shengwen Jin  
Russell Jones  
Xiugnan Li  
Chung Lui  
Beatrice Magnani  
Scott McDonough  
Leslie Moore  
Arlon Motsch  
Shkelqim Miskaj  
Linda Noyes  
Kevin Price  
Mark Reid  
Norman Ross  
David Wegner  
Michael White  
Keith Wrolstad

### STUDENT

Bryan Hanks  
Ramazan Yilmaz

---

## Geophysical Auxiliary of Houston

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. For more information about the programs and to offer suggestions, please call Georgeann Massell at 281-353-7894.

---

## GSH 2001/2002 - Nominations

**President-Elect:** Dan Ebrom, Joe Alcamo

**First VP:** Hua-Wei Zhou, Jim Schuelke

**Second VP:** Ron Ward, Bob Parker

**Secretary:** Jim Wood, Karl Schleicher

**Treasurer:** Donna Sisak, Josef Paffenholz

**Editor:** Frank Levin

# Offshore Technology Conference

April 30 - May 3, 2001

## Arrangements Committee Volunteers

Offshore Technology Conference Arrangements Committee Volunteers are asked to serve as Speakers Room Monitors for one half day session. Duties consist of monitoring the papers presented in each session for clarity of presentation, quality of slides and performance of audio visual equipment. This information together with a count of the number of people in attendance, will be reported to the Headquarters office Room 106, by filling out and returning the check list for provided for that purpose.

Also, Room Monitors are to work closely with the Session Chairman to maintain room temperature and lighting at optimum conditions by contacting building and audio visual personnel as necessary (telephone number provided).

Other detail instructions will be furnished before each Session. Volunteers will be provided with free entry badges and parking passes (good for the entire conference).

### PLEASE PRINT

NAME: \_\_\_\_\_

MAILING ADDRESS: \_\_\_\_\_

CITY/STATE/ZIP: \_\_\_\_\_

TELEPHONE: \_\_\_\_\_

E-MAIL: \_\_\_\_\_

### PLEASE CIRCLE:

	AM	PM		
MON	TUE	WED	THU	

AS NEEDED  
(NOTE: AS NEEDED IF POSSIBLE)

Please complete and return to :  
GSH/HGS Office  
Attn: Alf Klaveness or Hugh Hardy  
7457 Harwin Drive  
Suite 301  
Houston, TX 77036





## HGS Dinner Meeting

Date: Monday, May 7, 2001  
Location: Westchase Hilton,  
9999 Westheimer

Key Patterns of Corporate Organization  
and Culture Influencing Exploration Per-  
formance

Peter R. Rose and Gary P. Citron  
Rose & Associates, LLP.  
Austin, Texas

Recent independent studies document that companies managing petroleum exploration using (1) integrated geotechnical prospect and play assessment; (2) systematic probabilistic risk analysis; and (3) venture selection through centrally coordinated portfolio management clearly outperform companies that do not. This has naturally prompted great interest in sophisticated mathematical and software tools and systems that enable routine application of portfolio theory, real options theory, and decision analysis.

To be effective, however, such advanced management tools must rely on objective geotechnical input — that is, the estimates of key geotechnical parameters must be free of bias. Outperforming companies reduce bias through disciplined linkage of integrated geotechnical work, probabilistic risk analysis, and applied learning from post-drill well reviews. Then they select those ventures which optimize portfolio performance, consistent with acceptable risk. But the primary problem remains the input — not the tools — and firm, consistent process implementation is essential, reinforced by positive incentives.

Analysis of many active E and P companies indicates that organizational and cultural patterns of underperforming firms encourage biased geotechnical input, and discourage centrally coordinated portfolio management. Subjectivity, intuition, salesmanship, and geopolitics flourish in the absence of consistent probabilistic procedures, thus

promoting persistent motivational bias, mostly as prospect overestimation. Objective and consistent assessment of predictive performance is neither required nor evaluated. Decentralization of exploration decision-making into autonomous business units necessarily reduces the selective power of portfolios, and allows inferior projects from some business units to replace superior projects from others. Incentives often work at cross-purposes to efficient portfolio performance and correct corporate goals. The result is general underperformance relative to centrally coordinated E&P firms.

Companies who purposefully undertake to improve persistent exploration underperformance should anticipate (and encourage) substantial changes to both their organizational structure as well as their prevailing professional culture, if they are to succeed.

### BIOGRAPHIES

PETER R. ROSE (BS, MA, PhD, Geology, University of Texas at Austin) is a certified petroleum geologist who was Staff Geologist with Shell Oil Company; Chief, Oil and Gas Branch of the U.S. Geological Survey; and Chief Geologist and Director of Frontier Exploration for Energy Reserves Group, Inc. [now BHP Petroleum (Americas), Inc.]. In 1980, he established his own independent oil and gas consulting firm, Telegraph Exploration, Inc. His clients include most major U.S. companies and many prominent independents as well as many international firms and state oil companies. Dr. Rose has explored for oil and gas in most North American geological provinces and has published and lectured widely on U.S. resource assessment, basin analysis, play development, prospect evaluation, and risk and uncertainty in exploration. He has taught extensively at the professional level and was a 1985/1986 AAPG Distinguished Lecturer. Since 1989 he has been deeply involved in design and implemen-

tation of comprehensive exploration risk analysis systems for executive management of many major oil companies, operating in both the Domestic and International theaters. His courses emphasize the link between geoscience and making money in the business of petroleum exploration. Dr. Rose was 1996/97 President of AAPG's Division of Professional Affairs, and received the coveted Parker Memorial Medal from the American Institute of Professional Geologists in 1998. He is the Managing Partner in a newly established consulting firm, Rose & Associates, LLP (R&A).

GARY P. CITRON (BS, Geology, State University of New York at Buffalo; MS Geology, Cornell University; Ph.D., Geology and Geophysics, Cornell University) joined Telegraph in February 1999 after 19 years with Amoco. He is a certified Petroleum Geologist who worked at Amoco as a geophysicist, supervisor, manager, planner and consultant. In his last assignment, with Amoco's Prospect Quality Team, he worked with exploration teams worldwide for four years, helping them assess prospect component ranges and associated chance factors. Dr. Citron has developed expertise in consensus-building in risk assessments and performance tracking. He also coordinated the yearly post appraisal of the exploration drilling program, which helped develop, disseminate and institutionalize learning throughout the exploration department. Prior to that, he coached Amoco's managers on planning, exploration performance measurement and work process issues. He has worked most of the U.S. domestic trends as an explorer and manager, with special emphasis on the Gulf of Mexico. In 1999 he was selected by the AAPG to serve in their Visiting Geologist Program. While at Amoco Dr. Citron actively mentored younger geoscientists on prospect measurement and assessment. He is a Partner in Rose & Associates, LLP (R&A).

HOUSTON GEOLOGICAL SOCIETY PRESENTS

# Overview of Exploration Risk Analysis for Managers

May 15, 2001

Auditorium, Shell Plaza, 910 Louisiana (Downtown Houston)

**Description:**

The seminar reviews key geotechnical principles involved with estimation of prospect reserves and chance of success, identifies key management issues, common misconceptions and pitfalls (as well as their consequences), and the inherent power of systematic RA methodology to generate drilling portfolios which optimize corporate goals and deliver on promised performance. It highlights the critical management tasks necessary to cause progressive improvement in exploration performance of E&P firms; and it addresses concerns about the constraints on management decision-making imposed by systematic RA procedures.

**Who should attend:**

Because the course integrates fundamental topics such as Uncertainty, Reserves Estimates, Chance of Success Predictions, Economic Measures, Portfolio Management, Profitability Forecasts, and Performance Tracking, we strongly encourage the participation of decision-makers with diverse backgrounds, such as Geoscience, Engineering, Finance, and Business Management

**Instructors:**

PETER R. ROSE (BS, MA, PhD, Geology, University of Texas at Austin) is a certified petroleum geologist

who was Staff Geologist with Shell Oil Company; Chief, Oil and Gas Branch of the U.S. Geological Survey; and Chief Geologist and Director of Frontier Exploration for Energy Reserves Group, Inc. (now BHP Petroleum (Americas), Inc.). In 1980, he established his own independent oil and gas consulting firm, Telegraph Exploration, Inc. His clients include most major U.S. companies and many prominent independents as well as many international firms and state oil companies. His courses emphasize the link between geoscience and making money in the business of petroleum exploration.. He is the Managing Partner in a newly established consulting firm, Rose & Associates, LLP (R&A).

GARY P. CITRON (BS, Geology, State University of New York at Buffalo; MS Geology, Cornell University; Ph.D., Geology and Geophysics, Cornell University) joined Telegraph in February 1999 after 19 years with Amoco. He is a certified Petroleum Geologist who worked at Amoco as a geophysicist, supervisor, manager, planner and consultant. Dr. Citron has developed expertise in consensus-building in risk assessments and performance tracking . He has worked most of the U.S. domestic trends as an explorer and manager, with special emphasis on the Gulf of Mexico. He is a Partner in Rose & Associates, LLP (R&A).

---

**OVERVIEW OF EXPLORATION RISK ANALYSIS FOR MANAGERS - - REGISTRATION FORM**

Name: \_\_\_\_\_ Company: \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_

Phones: Home \_\_\_\_\_ Office \_\_\_\_\_ E-mail: \_\_\_\_\_

Amount sent (US \$) \_\_\_\_\_

Note: Cost is \$75 members of organizations below and full-time students before May 8, \$95 for non-members before May 8, \$125 for registration after May 8 and at the door.

Membership (circle): HGS, GSH, SIPES, API Houston, SPE Gulf Coast, HAPL, SPEE Houston, SPWLA Gulf Coast

HGS/GSH Member No: \_\_\_\_\_

To reserve a seat, please return this form with your check payable to: HGS

Mail to: HGS Office —Attn: Overview of Exploration Risk Analysis for Managers Seminar  
7457 Harwin, Suite 301 - Houston, Texas 77036-2190

# THE SOCIETY OF PETROLEUM EVALUATION ENGINEERS

## APRIL LUNCHEON MEETING

DATE: Wednesday, April 4, 2001  
TIME: 11:30 a.m.  
COST: \$25.00 Members and Guests  
LOCATION: Petroleum Club Coastal Suite

SPEAKER:  
STEPHEN P. A. BROWN

“California’s Electricity Woes: A Vision of the Future?”

### Talk Summary

California has long been in the vanguard of national trends. Since mid-2000, California has experienced a considerable number of problems with its electricity market, including fluctuating prices and shortages. California’s electricity woes give us a reason to take pause and consider the future of U.S. electricity markets and of energy policies in general.

Electricity is an important part of the U.S. energy infrastructure-accounting for more than one-third of U.S. energy consumption. If other states experienced problems with their electricity markets similar to those in California, the effects would be felt throughout the economy.

Nearly half the states are restructuring their electricity markets, and many more are considering doing so. Eight states have already implemented restructuring of their electricity markets. Sixteen states and the District of Columbia have enacted legislation or issued regulatory orders that will restructure their electricity markets. Eighteen states are investigating the possibility of restructuring their electricity markets. Only eight states are not currently taking any steps toward electricity market restructuring.

The problems with the California electricity market are the result of several factors, including a poorly devised restructuring that took place nearly three years ago. As the states progress toward restructuring their electricity markets, we should ask: Are California’s electricity

woes a dark vision of the future or an isolated incident in a state where policymaking was not sufficiently informed by economic reality?

### Speaker Bio

Stephen P. A. Brown is director of energy economics and microeconomic policy analysis at the Federal Reserve Bank of Dallas. In this position, he conducts and manages economic research and analysis. He also briefs the Bank’s president and board of directors on economic conditions and policy. His management responsibilities include energy economics, microeconomic public policy and the Bank’s publications *Economic and Financial Review* and *Southwest Economy*.

He holds a B.S. in economics from California Polytechnic State University and an M.A. and Ph.D. in economics from the University of Maryland. He also has completed a number of leadership training programs, including the executive development program at the Federal Reserve Bank of Dallas and several at the Center for Creative Leadership in Greensboro, North Carolina.

Brown is the author of numerous articles on economic policy, economic theory and business conditions. His research focuses primarily on energy, environmental and natural resource economics, microeconomic public policy and economic conditions. His articles have appeared in such publications as *Business Economics*, *The Energy Journal*, *Contemporary Economic Policy*, *Economic and Financial Review*, *Journal of Environmental Economics and Management*, *Public Choice* and *Southwest Economy*.

His work has received national and international attention from academia, the business community, government and OPEC. He has been quoted in various regional publications, as well as in *Business Week*, *The Economist*, *Financial Times*, *Newsweek*, *The New York Times*, *Time*, *The Wall Street Journal* and Marilyn vos Savant’s book, *The Power of Logical Thinking*. He also has appeared on various regional broadcasts

in addition to CNN’s *Financial Report*, ABC’s *Financial World*, the McNeil/Lehrer *NewsHour*, *Public Radio International’s Market Place*, and the PBS series *Man, Energy and the Environment*. He has made numerous presentations to academic, civic and professional groups, including members of the British Parliament.

Brown joined the Federal Reserve Bank of Dallas in 1981, after working as an energy economist for Brookhaven National Laboratory and teaching economics at several universities. In addition to his principal position, he serves as an adjunct professor of economics at Southern Methodist University. He also serves on the advisory board for the College of Business at California Polytechnic State University.

He is a member of the American Economic Association, Western Economic Association, International Association for Energy Economics and Public Choice Society. He has also participated in the Energy Modeling Forum at Stanford University and the International Energy Workshop. He recently served on the economic review panel for the National Petroleum Council study of future issues in the oil and gas industry. Brown plays guitar and, with his wife, dances and teaches Argentine tango.

Seating is limited so please register early. This month only, please call Angie at Sproule Associates, Inc. - 713-652-5140 by Noon, Monday, April 2, 2001 to make reservations. (Do not call B. K. and leave reservations on her voice mail this month. She will be out of the city and unable to check messages). Cancellations and no-shows will be billed the luncheon cost of \$25.00.

# Annual Honors and Awards Banquet

## Thursday, May 3, 2001

### Lakeside Country Club

On **Thursday, May 3, 2001**, the GSH will host its Annual Honor and Awards Banquet in the Grand Ballroom of the Lakeside Country Club. Our special guests will be your friends who have 25 and 50 years of membership in the SEG along with this years GSH Honorary and Life Members. Bring your spouse and guest and enjoy cocktails (cash bar) from 6:30-7:15 p.m. in the Pine Lake Room. Then at 7:15 p.m., enjoy an elegant seated dinner and music. SEG President, Sally Zinke, will give the Presidential Address and assist GSH President, John Sumner, in presenting the awards.

The cost for the dinner is \$30.00 per person, with pre-paid reservations necessary to accommodate the guarantee requirements of Lakeside Country Club. Make your check payable to the GSH and forward it by April 26th to April Robertson, Diamond Geophysical, 2925 Briarpark, Suite 400, Houston, Texas 77042. Please reference "Awards Banquet" on your check.

**Menu**  
**French Onion Soup**  
**House Salad**  
**Filet Mignon**  
**Roasted New Potatoes**  
**Fresh Asparagus**  
**Chocolate Covered Pecan Balls**

I-10 Katy Freeway		
Lakeside Country Club	Memorial	
Wilcrest	Briar Forest	Beltway 8
	Westheimer	

---

### RESERVATION FORM

Name: \_\_\_\_\_

Guest: \_\_\_\_\_

No of Guests: \_\_\_\_\_ Check No: \_\_\_\_\_

Make your check **payable to the GSH** and forward it by April 30th to:  
 April Robertson  
 c/o Diamond Geophysical  
 2925 Briarpark, Suite 400  
 Houston, Texas 77042

Please reference "**Awards Banquet**" on your check.

# Annual Honors and Awards Banquet

Thursday, May 3, 2001 • Lakeside Country Club

## SEG 50 YEAR HONOREES

John C. Baxter  
Wesley E. Bird, Jr.  
LeRoy Brow  
T. Norman Crook

Ned E. Duval, Jr.  
James H. Frasher  
John T. Murphy, Jr.

Samuel O. Patterson  
Robert E. Sheriff  
Marvin L. Wagoner

## SEG 25 YEAR HONOREES

Lawrence Ford Asher  
William K. Aylor, Jr.  
Michael Thomas Balombin  
Max Baumeister  
Harry George Beggs  
Charles Howard Blumentritt  
David L. Brewster  
Robert J. Bruce  
Scott D. Bugosh  
Donald Lindy Buscarello  
Chester J. Callahan  
David Roy Carlson  
Raymond O. Clifton, Jr.  
Bruce Edward Cornish  
Scott Daniel  
Scott L. Davies  
David L. Donalson  
Donald Ray Dutcher

Alan Paul Frink  
J. Michael Graul  
Michael L. Harkness  
Steven George Henry  
H. Truman Holcombe  
David Scott Holland  
Carslile Gene Huxohl  
Karl Christian Joern  
Albin K. Kerekes  
Harvey R. Klingensmith  
Vic Lamanuzzi  
Tony A. Lauhoff  
George E. Marion  
Allen Earl May  
Jerome P. Mazzaferro  
Robert David McCann  
John A. Minor  
Ronald K. Nickle

Malcolm Paterson  
Gerald Linwood Penn  
Arnold L. Porter  
Mary J. Repar  
Randall Scott Riepe  
Michel Ivan Roberson  
Gilbert Walter Snell  
Fred Dean Spindle  
J. David Stevens  
Gordon Robert Wainscott  
Robert Edward Warmbrodt  
R. Daniel Wisecup  
David Ray Wood  
Michael W. Zebrowski  
Richard K. Zoss



## University of Houston Geoscience Alumni Association luncheon

Date: April 25, 2001  
Where: Petroleum Club, 43rd floor, in the  
Exxon building downtown: 800 Bell  
Ave  
Cost: \$25

Reservations: Matt Martin (President, UHGAA) at  
281-874-1632 by noon Friday, April 20th.

Title: Geologic Overview of the NE Mississippi Fan  
and Shelf to West Florida Terrace Region, Offshore  
Gulf of Mexico

Norman E. Biles<sup>1</sup>, Andrew E. Hannan<sup>1</sup>, George A  
Jamieson<sup>1</sup>, and John E. Bain<sup>2</sup>

- 1 WesternGeco, 3600 Briarpark Drive, Houston,  
Texas 77042
- 2 Galileo Geophysics, Inc., 6100 Hillcroft, Hous-  
ton, Texas 77081

### ABSTRACT

This study is based on the joint venture (WesternGeco and TGS NOPEC) Phase 46, 16,000-line-mile 2D seismic and gravity/magnetic program that was acquired, processed, and interpreted from 1997-1999. It consists of a 2 x 2 mile grid (16,100 mi<sup>2</sup>), covering parts of Main Pass, Destin Dome, Viosca Knoll, Mississippi Canyon, Desoto Canyon, Atwater Valley, and Lloyd Ridge. Water depths range from 75 feet to over 10,000 feet. Geological control from 44 biostratigraphy wells helped calibrate seven mapped horizons. In addition, a velocity cube was generated from this dataset.

A Cretaceous carbonate shelf, a prominent escarpment to the southeast, dominates the east and northeast portions of the survey. It is overlain by primarily regressive Cenozoic clastics. West of the carbonate shelf is a Miocene to Plio-Pleistocene shelf /slope/fan complex. The shelf facies is developed in the northwest and progresses through slope to deepwater fan deposits toward the southeast. This complex contains numerous allochthonous salt bodies. In general, autochthonous salt structures are present east of the detached salt, underlying the slope fan complex. These continue eastward to the Cretaceous shelf edge.

This region is becoming an increasingly attractive area to explore. For example, "Crazy Horse" in Mississippi Canyon (MC) Block 778 is a recent subsalt discovery within the study area.

### Biography

Norman E. Biles received a BS in physics from Lewis and Clark College, and an MS (1966) in geophysics from New Mexico Tech. He worked for Phillips Petroleum from 1966 to 1988 in data processing and international/domestic exploration. Consulted for BP and TGS on GOM lease sales and velocity interpretation from 1988 to 1990. Since 1990 he has been involved with velocity studies and seismic interpretation at WesternGeco (previously Schlumberger Geco-Prakla). Recent seismic interpretation assignments include the eastern Gulf of Mexico and deepwater Brazil. He is a member of the SEG and Houston's geologic and geophysical societies.



► **Exhibit Space Available**

**Society of Exploration Geophysicists**  
San Antonio, TX  
September 9 - 14, 2001

# SEG 2001

## International Exposition and Seventy-First Annual Meeting



**Explore the world's largest marketplace of geophysical technology and services.**

Join an estimated 10,000 geoscientists in San Antonio who will be **"Thriving On New Challenges"** with the latest acquisition, processing, and interpretation technologies and methods. Survey more than 500 technical presentations and approximately 300 exhibits displaying state-of-the-art products and services for the geophysical industry.



### 3 Ways to Register

- Input online at <http://meeting.seg.org>
- Use forms inserted in the "Annual Meeting Announcement"
- Contact SEG Business Office and we will fax the forms to you



Technical Papers Deadline .....	<b>March 7</b>
Advance Registration Due.....(save off the on-site fee)	<b>July 27</b>



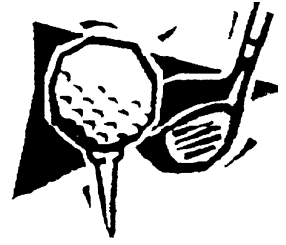
**For more info:** tel + 1.918.497.5500  
fax + 1.918.497.5557  
email [meetings@seg.org](mailto:meetings@seg.org)



*Thriving On New Challenges*



# Golf Tournament and Dinner Geophysical Society of Houston



DATE:	Monday, May 21, 2001	FORMAT:	Four Man Florida Scramble
PLACE:	Kingwood Country Club	COST:	\$115.00 Members and Guests
TIME:	9:30 AM Registration 11:30 AM Tee off (Shotgun)	DEADLINE:	April 15, 2001

### MAIL ENTRIES TO:

Fairfield Industries • 14100 Southwest Freeway, Suite 600 • Sugar Land, TX 77478 • Attn: George Lauhoff

### MAKE CHECKS PAYABLE TO:

Geophysical Society of Houston

### GOLFERS READ CAREFULLY

The three courses at Kingwood are available to the first 432 entrants. 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 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.

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Circle: Member Guest

Circle: Member Guest

Company: \_\_\_\_\_

Company: \_\_\_\_\_

Phone: \_\_\_\_\_ HDCP: \_\_\_\_\_

Phone: \_\_\_\_\_ HDCP: \_\_\_\_\_

Name: \_\_\_\_\_

Name: \_\_\_\_\_

Circle: Member Guest

Circle: Member Guest

Company: \_\_\_\_\_

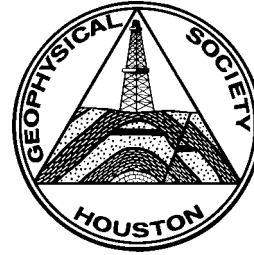
Company: \_\_\_\_\_

Phone: \_\_\_\_\_ HDCP: \_\_\_\_\_

Phone: \_\_\_\_\_ HDCP: \_\_\_\_\_

Course Preference: ISLAND LAKE MARSH DEERWOOD  
(Circle One)





# **SEG - GSH Spring Symposium 2001**

## **Reservoir Resolution Through Comprehensive Use of Seismic Data Attributes**

**Dates: May 8 - 10, 2001**

**Location: Houston, TX**

Program: Seismic data attributes comprise not only the standard complex trace attributes, but AVO attributes, non-linear transformations, spatial attributes, velocity, and virtually any seismically-derived measurements that may shed light on the subsurface picture. Applying modern mathematical and computational techniques, such as neural networks and multi-variant analysis, coupled with the emerging visualization technology, the predicted characterization of reservoirs is becoming sharply resolved, and realistic. Topics to be addressed in the symposium include the following.

- \* Lithologic and Pore Fluid Predictions
- \* High Resolution Reservoir Imaging
- \* Reservoir Modeling ... Fluid Substitution Techniques
- \* Developments in Neural Network Classification
- \* Case Histories with Technique Validation
- \* AVO Attributes and their Applications
- \* Well Log Prediction
- \* Visualization Technology

Call for Papers (Deadline: April 17, 2001):

Please submit an expanded abstract of your paper as follows:

Electronic form: as an e-mail attachment in MS Word or Power Point to < seg.papers@texseis.com >

Hardcopy:  
SEG Symposium  
Attention: Mike Gaul  
Texseis, Inc.  
10810 Old Katy Rd., Ste. 201  
Houston, TX, 77043

For information:  
Co-Chairman Mike Gaul, phone: 713-465-3181; e-mail: symposium.info@texseis.com  
Co-Chairman Tury Taner, phone: 713-783-5593; e-mail: mt.taner@rocksolidimages.com

# 1st ANNUAL GSH/HGS SALTWATER TOURNAMENT

Friday, June 22, 2001  
Teakwood Marina, Village of Tiki Island  
Galveston, Texas

This year's Fishing Tournament will be held on Friday, June 22 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. We planned it on a Friday to make it a long weekend so the entire family can participate in the Tournament.

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

Registration fee includes: launch fee, GSH/HGS Fishing Cap, BBQ meal at the marina after weigh-in, refreshments, Trophies, and DOOR PRIZES. For more information, please contact:

**Bobby Perez (HGS & GSH)**

281-240-1234 ext. 219 Office • 281-240-4997 Fax • 281-468-1809 Cell • 281-495-8695 Home  
E-mail addresses: rdphxt@aol.com or r\_perez@jdkseis.com

**Greg Doll (HGS & GSH)**

713-658-8096 ext. 28 Office • E-mail address: gqdoll@email.msn.com

The Geophysical Society of Houston and the Houston Geological Society are non-profit organizations 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 their respective organization newsletters following the tournament. This is a great way to entertain friends, family, business associates, and clients. So spread the word!

## GSH/HGS SALTWATER TOURNAMENT

NAME: \_\_\_\_\_ COMPANY: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

PHONES: (H) \_\_\_\_\_ (B) \_\_\_\_\_ (C) \_\_\_\_\_

E-MAIL ADDRESS: \_\_\_\_\_

Upon receipt of the Registration form, each participant will be provided with a copy of the specific tournament itinerary and rules sheet by e-mail. Please register EARLY  
Please return this form with your check for \$50.00 per contestant payable to:

**GSH/HGS SALTWATER TOURNAMENT and Mail to:  
Ms. Joan Henshaw, 7457 Harwin Drive, Suite 301 ( Houston, Texas 77036**

Registration Fee: \$ \_\_\_\_\_ + Sponsor Contribution: \$ \_\_\_\_\_ = TOTAL \$ \_\_\_\_\_

**DISCLAIMER:**

I acknowledge that neither the Geophysical Society of Houston nor the Houston Geological Society will be held responsible for injury or accidents during this event. PRACTICE SAFETY!!!!

Signature: \_\_\_\_\_

# ANNUAL MEETING

and

## Bar-B-Que

5:00 p.m. to 8:00 p.m. on Thursday, May 17, 2001

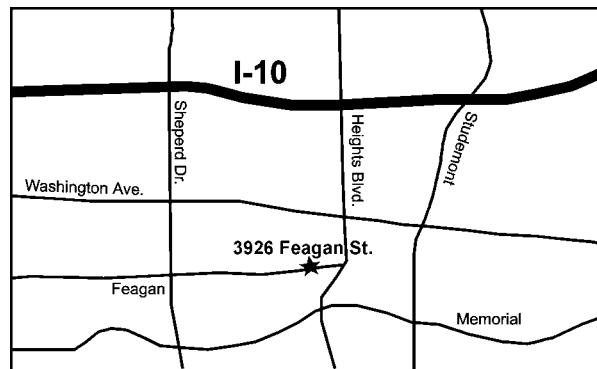
Come Enjoy A Great Evening - Welcome The New GSH Officers

### NEW LOCATION:

### GARDEN IN THE HEIGHTS

formerly BAVARIAN GARDENS

3926 FEGAN  
HOUSTON, TX 77007  
713 - 880 -1065



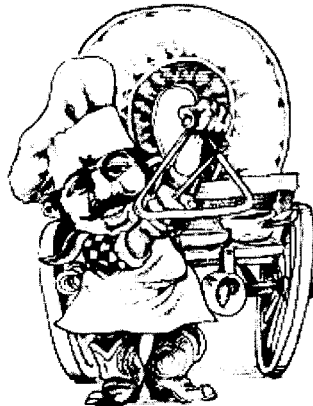
#### Tickets:

Only \$17.00 Each  
If Purchased By May 15, 2001  
\$20.00 Each At The Door

#### Note:

We Have To Guarantee The  
Number Of Dinners, So You  
Must Prepay To Be Guaranteed  
Your Meal.

**RAIN  
or  
SHINE**



#### WE WILL BE SERVING

- ☞ Bar-B-Que Brisket
- ☞ Sausage
- ☞ Chicken
- ☞ Beans
- ☞ Cole Slaw
- ☞ Bread
- ☞ Pickles
- ☞ Onions
- ☞ Draft Beer
- ☞ Soft Drinks
- ☞ Iced Tea

## Annual Meeting and Bar-B-Que

Thursday, May 11, 2000

Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Number Tickets Desired: \_\_\_\_\_ X \$17.00 Each = \$ \_\_\_\_\_

Enclose Check Payable To: **Geophysical Society of Houston**

And Mail To: **7457 Harwin Drive, Suite 301 • Houston, Texas 77036 • (713) 785-6403**

Tickets Will Be Held At The Door. If Your Company Is Purchasing A Block Of Tickets -  
Please Indicate Names On The Form To Eliminate Any Confusion At The Door.

**Ticket Orders Must Be Received By May 15, 2001 to Obtain \$17.00 Price.**

# APRIL 2001

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2	3	4 THE SOCIETY OF PETROLEUM EVALUATION ENGINEERS Petroleum Club Coastal Suite 11:30 a.m.	5	6	7
8	9	10 GAH Dim Sum Luncheon	11	12	13 NEWSLETTER DEADLINE	14
15 DEADLINE GOLF TOURNAMENT REGISTRATION	16	17 Spring 2001 SEG Distinguished Lecture HESS Building 11:30a.m.  Paper Deadline for Spring Symposium	18 Technical Breakfast Anadarko 7:00 a.m.  Near Surface SIG Fugro-South 5:30 pm  Data Processing SIG McMurfry Auditorium 5:00 pm	19	20	21
22	23	24	25 University of Houston Geoscience Alumni Association luncheon Petroleum Club,	26	27	28
29	30 OTC	MAY 1 OTC	2 OTC	3 OTC		

The Geophysical Society of Houston Newsletter (ISSN 1082-0817) is published monthly except for June and July by the Geophysical Society of Houston, 7457 Harwin, Suite 301, Houston, Texas 77036-2190. Subscription to this publication is included in the membership dues of \$25 annually. Periodicals postage paid in Houston, Texas.  
POSTMASTER: Send address changes to Geophysical Society of Houston Newsletter, 7457 Harwin, Suite 301, Houston, Texas 77036-2190.

## GEOPHYSICAL SOCIETY OF HOUSTON

7457 HARWIN DRIVE, SUITE 301  
HOUSTON, TEXAS 77036

ADDRESS SERVICE REQUESTED

Periodicals  
U.S. Postage  
**PAID**  
Houston, Texas