



Geophysical Society of Houston

VOL. 33, NO. 6

NEWSLETTER

FEBRUARY 1999

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GSH Technical Luncheon

Date: February 16, 1999
 Time: Register and Cash Bar, 11:30 am Luncheon and Talk, 12:00 noon
 Location: New HESS Bldg. 5430 Westheimer, Formerly the Carlyle Restaurant - north side of Westheimer between Chimney Rock and Yorktown
 Cost: \$20.00 for pre-registered members, \$25.00 walk-ins and guests.
 Reservations: Call 713-917-0218 or e-mail reservations@hgs.org by noon on Friday, February 12, 1999. New members applying at the February Technical Lunch will receive a free T-Shirt. Fill out the included application or pass it on to a colleague.

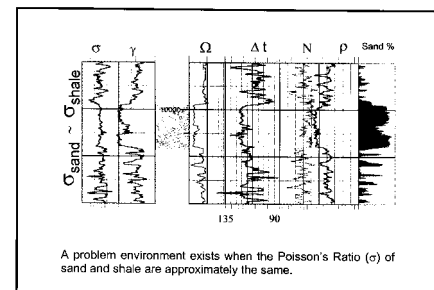
TITLE: GOM Deep-Water Seismic Amplitudes
SPEAKER: Richard Verm and the Exploration Services Group
 Geophysical Development Corporation

Are seismic amplitudes for GOM deep-water plays restricted to bright spot technology? Or does AVO benefit the interpretation? Likewise, will very large source-receiver offsets increase our ability to differentiate the deep-water lithologies? Are there anomalous

lithologies that would yield false "bright spots" or AVO responses? Questions similar to these provided the incentive to conduct a deep-water petrophysical calibration study.

In the study, digital well log curves from 600+ GOM deep-water wells were analyzed. A foot-by-foot mineral and pore fluid volumetric was conducted for each well. Trends for the sediment velocity and density were classified as a function of depth beneath mud-line, pressure, end-member lithologies, mixed lithologies, pore-fluid properties, geographic location, and depositional environment. Additionally, by incorporating shear-wave dipole sonics, empirical transforms were developed to predict shear-wave velocity for different lithologies and pore fluid conditions such as API gravity, GOR, gas density, pore pressure and temperature. These velocity-density trend curves and empirical petrophysical transforms provided a quantitative basis for estimating lithology from near trace and AVO measurements. The prediction technique can be carried from the conventional log-analyst's crossplots to AVO synthetics.

The results are directly applicable for interpreting seismic amplitudes and AVO responses; for predicting salt thickness from gravity data; for predicting pre-drill pressure profiles; and for time-depth conversion.



Technical Luncheon continued on page 3

GEOPHYSICAL SOCIETY OF HOUSTON

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Editor's Column:

This was supposed to be a "Welcome to 1999" column, but like so many other things over the holidays - it just didn't get done before the deadline...

So welcome to February! I want everyone in our membership to know that I am fully enjoying the contacts and interaction that go along with collecting the information for this newsletter each month. And in an admission that will surely reflect on my sanity, I will also tell you that I manage to maintain my humor in the hectic few days before the printer's deadline, as last-minute corrections and revisions ebb and flow across the e-mail landscape. The final touches on the January issue were confirmed at a Kinko Copies around the corner from my house since I was already on vacation, much to the amusement of the throngs of Christmas mailers.

Of course even with the number of eyeballs we try to have check the copy before it goes out, the odd gaffe does manage to slip through, and I am indebted to those of you who actually read the newsletter thoroughly enough to notice. (Although December's "will not no" in the front-page banner was kind of hard to miss!)

Thanks to all who pointed out that "seismic" was misspelled in two consecutive issues and that the calendars on the back page seem to be suffering from preliminary Y2K bugs. As anyone who has had proofreading duties knows, the more you look at an error, the more correct it seems.

Technical Luncheon continued from page 1

Numerous rules-of-thumb have evolved after the calibration study. As an example, reflections from clean wet sands against clay-rich shales are dominantly controlled by density contrasts. This is for reflections above the top of abnormal pressure. On the other hand, in abnormal pressure, velocity contrasts control the reflectivity. Very large offset AVO analysis does offer additional benefits in identifying lithology. Again the study shows some simple guidelines for

The next Milton Dobrin Memorial Lecture, which the GSH co-sponsors with the Dept of Geosciences at the U of H, will be held at 5:30 pm at the Hilton Hotel on campus on Wednesday, February 17, to be followed by a reception.

ROCK PHYSICS FOR THE STUDY OF GAS HYDRATES UNDER THE EARTH'S OCEANS

Amos Nur, Professor and Chairman
Geophysics Department, 397 Panama Mall/Mitchell 359, Stanford University, Stanford, CA 94305-2215.

ABSTRACT:

Solid gas hydrates form within the uppermost few hundred meters of the sea floor and are responsible for Bottom Simulating Reflectors (BSR's) at continental margins. Huge amounts of compressed methane (more than twice all hydrocarbons on earth) may exist under earth's oceans. The hydrates are a potential energy resource, they influence global warming and effect seafloor mechanical stability. It is important to be able to estimate the amount of gas hydrates and force methane trapped beneath from remote measurements.

Seismic sounding of earth is the most extensively used tool for obtaining images of the subsurface. It is possible to estimate the amount and state of existing hydrates trapped methane and the system's permeability by relating seismic velocity to the volume and distribution of gas hydrate in sediments. This can be done by linking the elasticity of hydrated sediments to their microstructure using rock physics theory and data.

Amos Nur: Geophysics Dept., Stanford Univ.
Address: Stanford, CA 94305-2215.

Employment History: Stanford Univ.: Dept. Chairman 1986-1991 and from 1997; Prof. of Geophysics 1979-present; Assoc.Prof. 1970-79. MIT: Research Assoc., 1969-70. Academic History: B.Sc. Geology 1962 Hebrew Univ., Israel; Ph.D. Geophysics 1969 M.I.T.

Honors and Awards: J. D. Macelwane Award 1974 AGU: Fellow, AGU, 1976; Fellow, GSA, 1980; Fellow CA Acad. of Science 1990; Honorary member, SEG, 1996. Society Affiliations: AGU, GSA, SET, SSA, SPE, AAAS, NY Academy of Science.

Areas of professional interest: Rock physics, tectonophysics, fossil energy exploration, production, and policy, Earthquake archaeology.

interpreting these amplitudes. Of course rules-of-thumb come with a "buyer beware" label, as reflections from anomalous lithologies can skew the interpretation.

By providing a petrophysical framework for the deep water, this work helps assign a risk factor to an interpretation. Most significantly, it points out the effects pore-fluid variation or mixed lithologies can have on the seismic response.

Richard Verm is Vice-President of Technology at Geophysical

Development Corporation. He has been involved in the development of AVO and VSP technology for the past 12 years. Prior to joining Geophysical Development Corporation, he has worked at the Allied Geophysical Laboratories at the University of Houston and before that at Geosource.

Richard holds a BA degree in mathematics from Rice University and Masters and Ph.D. degrees in geophysics from the University of Houston. He is a member of the SEG and ACM.

Feb 99 GSH Technical Breakfast

The GSH February 1999 Downtown Technical Breakfast meeting will be held at **Chevron 's 1301 McKinney office location on Wednesday, February 10, 1999 from 7:00am until 8:30am.** Our speakers typically begin their presentations around 7:30, with a question and answer period afterwards. The Geophysical Society would like to thank Chevron management, and our host, Marty Brandt, Chief Geophysicist for providing the facility and continental breakfast to all attending at no charge.

Biography:

Eivind Fromyr/Vice President Geophysical Technology, PGS Reservoir (U.S.), Inc. Geophysical specialist in the oilfield service with varied experience ranging from geophysical processing and development through wireline services and management. Was cofounder of Read Well Services and served as Technical Manager until 1994. Joined PGS to start up PGS Reservoir and has been in his current position as VP of Geophysical Technology since 1997. Project management of 4C and 4C acquisition in the Gulf of Mexico, North Sea and internationally. Mr.Fromyr received his BS in Economics in 1979 and his MS in Physics in 1983, both at the University of Oslo, Norway.

Abstract:

4 Component - a new dimension in marine seismic.

4 component seismic measure the full vector field through 3 mutually perpendicular geophone components and a hydrophone. The combined measurement of P-waves and S-waves provides invaluable information in terms of lithology, anisotropy, fluid monitoring and imaging. The increasing effort of extracting more reservoir information out of the seismic data has resulted in an increasing interest in the use of 4 component seismic.

Through its unique Dragged Array 2D system with deepwater capabilities, PGS has been one of the pioneers

within marine 4C acquisition. PGS has acquired 4C2D seismic in water depths deeper than 2000 m in both Europe and the Gulf of Mexico. The different surveys have had different objectives ranging from imaging through gas chimneys through lithology prediction. In this paper the 4C acquisition technology and some data examples will be presented.

SEG Notice

“Fortune Favors the Bold”

Houston once again hosts the SEG Annual Meeting and International Exposition. For the third time this decade, the George R. Brown Convention Center will be the focus of the international exploration community.

Our local society, the largest SEG section, will play host to this annual gathering of friends, associates and technology. The opportunity to meet with colleagues from around the globe to share common problems, concerns and solutions should not be missed.

Keep in mind the following dates:

Deadline for submission of Expanded Abstracts
Thursday, April 1, 1999

Convention Begins.
Sunday, October 31, 1999

For the latest information and abstract kits, check the web site <http://www.seg.org/seg99>.

The GSH Employment Referral Service

Sam LeRoy and Steve Starr
GSH Employment Referral Committee

This free service connects employers with prospective employees in the geophysical industry. Open to all GSH members in good standing, the service acts as a clearing house where employers can request individuals with specific skills and confidentially receive resumes of qualified personnel.

Employers: Just fax or email your requirements, and receive back the resumes of qualified GSH members.

Contact Sam LeRoy in Houston at:
(281) 556-9766 phone
(281) 556-9778 fax
or by email to
earthview@aol.com

GSH members seeking employment or consulting work need to mail resumes to:

GSH Employment Referral Committee
12000 Westheimer, Suite 320
Houston, TX 77077

Updates can be seen on the Internet at the GSH Website under the Employment Referral heading:

<http://www.seg.org/sections/gsh/gshhome.html>

Our resume files reflect the diversity of our members, including geophysicists and geologists in exploration and production, processing and acquisitions geophysicists, geotechs, scientific programmers and marketing geophysicists. Their experience levels range from recent graduates to seasoned hands with over 40 years in the industry.



SIG NOTICES

Data Processing SIG

SIG Chair - Karl Schleicher
713 782 1234
karl@geodev.com

February Meeting

Date: Wednesday
February 17, 1999
Time: Social 4:30pm
Presentations 5:00-6:30pm
Location: Contact
Karl@geodev.com or
Karl Schleicher
713-782-1234
For meeting location
Cost: NO COST
Organizers: Bee Bednar, ADS
Steve Roche, Input/
Output
Speaker 1: Bob Hardage, Bureau
of Economic Geology
Title: Data-Processing Issues
Related to Multi-
component Onshore
3-D Surveys
Speaker 2: Bruce Mattocks, Arco
Title: Shear-wave anisotropy
characteristics at
Vacuum Field

ABSTRACT

Title: Data-Processing Issues
Related to Multi-
component Onshore
3-D Surveys
Bob A. Hardage
Bureau of Economic
Geology

The principal research focus at the Bureau of Economic Geology (Bureau) is to develop and demonstrate technologies that will improve the characterization of oil and gas reservoirs. In 1997, the Bureau created the Exploration Geophysics Laboratory (EGL) to develop multi-component seismic technology that can be used to describe the internal architecture of reservoir systems. The objective of EGL is to increase the amount of reservoir-sensitive information available to researchers by recording both P-wave and S-wave data

rather than relying only the conventional P-wave image to describe a reservoir system.

Using donations from a consortium of 32 companies, the EGL has developed new vectorized seismic sources, conducted several 9-component (9-C) waveltests and VSPs, and has access to 3D9C and 3D3C data recorded by a full-time seismic research crew. This industry-sponsored program will be described, and some of the issues involved in processing 3D9C and 3D3C data and 9-C VSP data will be discussed. These issues include the distinction between field-acquisition coordinates and natural-earth coordinates for S-wave imaging, the increased computational demands of 3D9C surface-recorded data compared to conventional 3-D P-wave data, and the problems introduced by the different signal-to-noise properties of horizontal-component and vertical-component data.

Speaker Biography

Bob A. Hardage received a PHD in physics from Oklahoma State University after completing a NASA-sponsored investigation of micrometeorite impact on space vehicles. He worked for Phillips Petroleum Company for 23 years and three years for Western-Atlas International. He is now a research scientist at the Bureau of Economic Geology, University of Texas at Austin. His research interests are borehole and crosswell seismology, vector wavefield imaging, and reservoir characterization. He was Editor of Geophysics from 1993 to 1995.

ABSTRACT

Shear-wave anisotropy characteristics at Vacuum Field In the fall of 1995 the Reservoir Characterization Project at Colorado School of Mines acquired the first time-lapse multicomponent three-dimensional seismic survey at Vacuum field in Lea County, New Mexico. The survey was acquired as part of an integrated effort to monitor a CO₂ enhanced oil recovery project undertaken in the Texaco-operated

Central Vacuum Unit.

In conjunction with the nine-component surface seismic survey, a single three-component receiver was placed at depth in a borehole just south of the center of the survey area. Three source components were generated at each of more than six hundred surface locations representing a broad range of source-to-receiver offsets and azimuths, and the resulting wavefields recorded at depth.

The natural coordinate system of the arriving shear-waves is determined for each source point using the conventional Alford rotation method.

The polarization of the fast shear-wave and the corresponding slow shear delay time vary with source-to-receiver offset and azimuth in a manner consistent with published models of shear-waves in orthorhombic media. In particular, point singularities are identified at small and large offsets, giving clear indication of a lower-than-hexagonal order of symmetry. Shear-wave {qSV} anisotropic focusing phenomena are also observed in the data.

The time-lapse differences between the two surveys suggest good agreement in the measured polarization, delay time, and traveltimes in the natural coordinate system. Prominent time-lapse anomalies are observed in close association with playa lakebeds at the surface.

Speaker Biography

Bruce Mattocks received a B.Sc. (Hons) degree in geophysics from the University of Manitoba in 1981. Upon graduation he joined Gulf Canada Resources as a geophysicist focusing on seismic processing and technical support for exploration operations, and subsequently as a systems analyst. He began graduate studies in geophysics at Colorado School of Mines in 1992, completing a Ph.D. in 1998, and is currently employed by ARCO Exploration and Production Technology Company. He received SEG's 1997 Best Student Paper award.

Editor's Note: As the business cycle moves into what appears to be another round of layoffs and mergers, many geophysicists will find themselves considering starting their own businesses. This article provides information on one aspect to consider.

The newsletter staff welcomes other submissions on the business side of geophysics.

PEOs Work As Businesses' 'Virtual' Human Resources Department

As a geophysicist, you're probably used to being between a rock and a hard place. Unfortunately, when it comes to running your own business, the terrain can sometimes get even more challenging.

According to the U.S. Small Business Administration, the average small business owner spends up to 25 percent of his or her time handling employee-related paperwork; payroll and employee benefits administration, compliance with government regulations, employee recruiting and training, workers' compensation insurance, and liability issues. These personnel-management responsibilities are essential, but they can drain a company's resources and distract owners from focusing on their core business.

A growing number of business owners are discovering that a Professional Employer Organization (PEO) is the solution to their personnel-management challenges. With an annual growth rate of 30 percent, the PEO industry has been named by Entrepreneur magazine as one of the "Hottest Businesses for 1998."

What is a PEO?

Simply put, a PEO serves as a "virtual" human resource department for small- to medium-sized businesses. Top PEOs provide the resources, support mechanisms and experts to effectively manage a wide range of employer obligations - from payroll and benefits administration to workers'

compensation insurance and government compliance issues — thereby enabling business owners to spend more time concentrating on the success of their operations. PEOs also provide cost-effective access to employee benefits packages in line with those of Fortune 500 companies. This allows even the smallest businesses to compete more effectively with the "big guys" for the most experienced and talented employees.

How Will PEOs Help My Business Grow?

The changes that come from entering into a relationship with a full-service PEO produce productivity and morale boosts. Typically, employee benefits are enhanced, management can focus on growth opportunities, and employee matters are addressed in a timely and professional manner by trained experts.

Another advantage is sharing the liability of being an employer. With a significant increase in lawsuits involving issues such as sexual harassment and violence in the workplace, business owners have a growing need to protect themselves and their companies. Many PEOs provide guidance in dealing with the threats of harassment, violence in the workplace and other issues, as well as implementing proper policies and procedures in the event that it becomes necessary to terminate or discipline employees. PEOs also will help their clients avoid adverse interviewing situations by providing professional guidance about legally permissible questions and helping select questions that will provide valuable insight.

Choosing the Right PEO

In choosing a PEO, it is crucial for companies to do the necessary due diligence. Not all PEOs provide the same services. Some not only handle basic payroll and benefits administration, but also provide a complete range of personnel management services. The right PEO will ensure that the human resource needs of your business are handled properly and professionally.

Guidelines For Selecting a PEO

The National Association of Professional Employer Organizations (NAPEO) offers the following guidelines to companies considering a relationship with a PEO:

1. Assess your workplace to determine your human resource and risk management needs.
2. Make sure the PEO is capable of meeting your goals. Sales brochures and fancy proposals are easy to print. Meet the people who will be serving you.
3. Check the firm's financial background; ask for banking and credit references. Ask the PEO to demonstrate that payroll taxes and insurance premiums have been paid.
4. Ask for client and professional references.
5. Check to see if the company is a member of NAPEO, the national trade association of the PEO industry.
6. Investigate the company's administrative and risk management service competence. What experience and depth does its internal staff have? Has any of the senior staff of the PEO been certified as Certified Professional Employer Specialists (CPES) or other relevant professional designations?
7. Understand how the employee benefits are funded. Are they fully insured or partially self-funded? Who is the third-party administrator or carrier, and are they licensed?
8. Understand how the employee benefits are tailored. Determine if they fit the needs of your employees.

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9. Review the service agreement carefully. Are the respective parties' responsibilities and liabilities clearly laid out? What guarantees are provided? What provisions permit you or the PEO to cancel the terms of the contract?

10. The state of Texas requires a PEO to be licensed or registered. Make sure the company you are considering meets all such requirements.

Source: NAPEO. For more information, visit the association's website at www.napeo.org.

Ted Crawford is a Houston District Manager for Administaff, Inc. (NYSE: ASF). Administaff provides its comprehensive range of personnel management services to client companies in 49 states. For more information, call 713-621-2449 or 800-239-3959, or visit the company's website at www.administaff.com.

SEG-GSH Museum

I once wrote in this newsletter that reading about SEG affairs was similar to watching paint dry. Boring! I am going to write about the SEG Museum while the paint is drying. Stay with me, please. I have previously stated that the price of the Museum is eternal vigilance.

This is true. Without interest, without dedicated volunteers, without help from donors, the museum will vanish. Don't leave me! This is not an appeal for money! (yet). The SEG Museum Committee, headed by Jennifer Swanson, is striving to fashion something that we can all enjoy and be proud of, even if we don't all get to Tulsa to see the Physical Museum (and the statue dedicated to the field personnel). The Physical Museum is on the ground floor of the SEG building. It and the forthcoming doodlebugger statue will one day be worth the trip. The Physical Museum is part of the trilogy making up the SEG Museum. The other two are the Virtual Museum and the Travelling Museum. Kay Wyatt, with Phillips in Bartlesville, has led the way on the Virtual Museum. To see that effort log on to the SEG page on the internet and work your way over to the Museum. <http://seg.org/museum/VM/>



One of the items on display in the SEG museum
 Item No.: 86.23.01
 Item: Oscillograph
 Mfg.: Seismograph Service Corp.
 Date: Circa 1955
 Donor: robert Broding

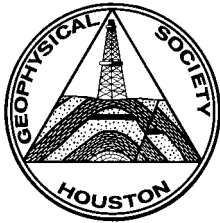
The Travelling Museum traveled to the SEG convention in New Orleans. It was a hit but only a pale image of what it could be if we could jazz it up to the vision of the Museum Committee. I picture it with bells and whistles, crowds of interested lookers, and centered as the highlight of the exposition. Today we usually put it on an out of the way aisle, making sure it doesn't take up valuable space that could be used by paying customers.

The GSH has a museum. It is in display cases at the North Harris Campus. Tom Fulton has been actively working on that project. I have been a proponent of combining the GSH and the SEG museums in some fashion. That is easy to say but very difficult to bring off, not because of any reluctance on the part of the GSH or the SEG but because we don't know how to bring them together. I was talking to an executive of a large oil company. He told me that it would be difficult to contribute significant funds to a museum in Tulsa. It would be much easier if it were in Houston since the donor's name would be more visible. I can see the name up in

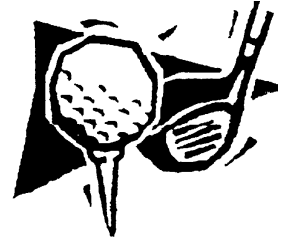
lights: Exxon-Mobil-BP-Amoco-Chevron-Shell-Texaco-Arco-Phillips-Conoco-Union. That might be a little long but after the mergers, who knows what the name will be. Maybe we should return to the tried-and-true name, Standard Oil Company, and get it over with.

The SEG Executive Committee put the SEG Museum on notice. Either collect \$2.8 million in donations or you will be restructured! Most of us know what restructure means. Thank goodness we have a new Executive Committee every year. With \$11/barrel, it might get a little tough to come up with that figure. I would hate to see us lose our momentum simply because we have no money. Gary Hoover (gmhoove@ppco.com), with Phillips in Bartlesville, is in charge of finding the \$2.8 mill (Now I am asking for money). Get on the band wagon! Join the parade! Wave the flag! Remember the Main! (the what?). We can make a difference! If not now, when? Buy a maquette! Over there! Hummmm...I am getting carried away with my enthusiasm. How much hard time can I get for writing a rubber \$2.8 million check?

Lee Lawyer is a member of the SEG Ad-Hoc Museum Study Committee and an Alternate SEG Section Representative for GSH.



Golf Tournament and Dinner Geophysical Society of Houston



DATE: Monday, May 24, 1999	FORMAT: Four Man Florida Scramble	
PLACE: Kingwood Country Club	COST: \$110.00 Members and Guests	
TIME: 8:00 AM Registration 10:00 AM Tee off (Shotgun)	DEADLINE: April 15, 1999	

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: (Circle One) ISLAND LAKE MARSH DEERWOOD



6th ANNUAL GSH/HGS/HAPL BASS TOURNAMENT

May 1 & 2, 1999

This year the 6th Annual GSH/HGS/HAPL Bass Tournament will once again be held at Harbor Marina on Toledo Bend Reservoir. We are looking forward to an even bigger and better weekend of fishing fun and friendly competition along with the traditional Saturday Night Fish Fry with door prize drawing that evening.

Prizes will be awarded for overall first, second, and third place team total weight of black bass as well as individual GSH, HGS, HAPL, and Guest prizes for biggest bass caught from each group. A Big Bass Pool for each day will be available as well. Each participant will be provided with a copy of the specific tournament itinerary, rules sheet, and prize breakdown with their tournament registration. For more information please contact:

Greg Doll (HGS & GSH) (713) 658-8096ext11..Office	(713) 951-0343..Fax	E-Mail to: gqdoll@msn.com
Bill Zwiener (HAPL) (713) 650-0903..Office	(713) 650-3547..Fax	

Once again, Harbor Marina has reserved a block of rooms for our tournament and several mobile homes are available as well. To make reservations, call (409) 625-4912 and be sure to mention that you are participating in this tournament. The rates are reasonable and there is a limited number of rooms available so reserve your accommodations as soon as possible! Frontier Park Marina (409) 625-4712 also has a few cabins and several mobile homes available within one mile of Harbor Marina.

Corporate and individual contributions are appreciated and will be acknowledged on a sponsor board at the weigh in station and in the respective organization newsletters following the tournament. This is a great way to entertain friends, business associates, and clients, so spread the word!

GSH/HGS/HAPL BASS TOURNAMENT REGISTRATION FORM

NAME: _____	AFFILIATION: _____
ADDRESS: _____	PHONE: _____
PARTNER: _____	AFFILIATION: _____
PHONE-OFFICE: _____	PHONE-HOME: _____
E-MAIL: _____	

Please clip this form and return it with your payment, make your check for \$50.00 per contestant payable to:
GSH/HGS/HAPL BASS TOURNAMENT and Mail to: Mr. Bill Zwiener, Jones & Zwiener, Inc., 1010 Lamar, Suite 650, Houston, Texas 77002

Registration Fee: \$ _____ + Sponsor Contribution: \$ _____ = **TOTAL \$** _____



GEOPHYSICAL SOCIETY OF HOUSTON

Application for Membership

Instructions: To facilitate becoming a member, it is imperative that the instructions within the application are followed explicitly and all of the required information is provided at the time of the initial submission. Failure to do so will result in the application being returned and approval being delayed.

Name: _____ Date: _____
Last First M.I.

Address: _____ Zip _____
Street Apt.# City State

Telephone: () _____

Employer (or school if you are a student): _____

Business Address: _____ Zip _____
Street (or P.O. Box #) City State

Company Phone: () _____ Ext#: _____ Fax: () _____ Ext#: _____

Job Title: _____ E-Mail Address: _____

I prefer to receive GSH mail at my Home Address Business Address

OPTIONAL: Spouse's Name _____ Interested in joining GSH Auxiliary? Yes No

1. Are you currently a member of the Society of Exploration Geophysicists? Yes No
Check membership classification below and enclose a copy of current SEG membership card with this application.
 Active Associate Student
If requesting same classification of GSH membership, skip items 2 through 7 and complete Item 8.

2. If you are not an SEG member or are applying for an upgraded GSH membership, are you now engaged in practicing or teaching geophysics or a related science? Yes No

2a. How many years of practicing or teaching? _____ years

2b. If you hold a degree in geophysics or related science indicate which:

- Bachelor's degree — enter 4 on the line
- Master's degree — enter 5 on the line
- Doctorate degree — enter 6 on the line _____

Add lines 2 a and 2 b _____ Total years of experience

If your total years of experience is 8 or greater, and you are applying for Active Membership, skip items 3 and 4 and complete items 5, 6, 7 and 8.

3. Are you interested in geophysics and desire Associate Membership in GSH? Yes No
If yes, skip items 5, 6 and 7 and complete item 8.

4. Are you a full-time student applying for Student Membership? Yes No
Fill in the following blanks and complete items 7 and 8

Academic Major: _____ Expected Graduation Date & Degree: _____

(Application Form continues on reverse side)

5. Please provide details of your professional experience as stated in item 2a.
If you require additional space, please attach a separate page.

Dates from (mo/yr) to (mo/yr)	Employer: Name Street, City, State	Specific Description of your Work and/or Teaching Experience

6. Please provide details of your college work as stated in item 2b.
If you require additional space, please attach a separate page.

Dates from (mo/yr) to (mo/yr)	University or College City, State	Major	Degree Obtained	Date Degree Completed

7. Applicants for Active Membership, who are not currently Active Members of the Society of Exploration Geophysicists, must provide the name of one sponsor who is currently an Active Member of GSH. Applicants for Associate Membership do not require a sponsor. Applicants for Student Membership must provide the name of a school administrator or faculty member who can certify as to their being a full-time student. You may call the GSH office at (713) 785-6403 for names of Active GSH members in your company or organization.

Sponsor or School Representative

Name	Address Street, City, State	Telephone

8. I hereby state that, to the best of my knowledge, the information and statements contained in this application are true.

_____ Applicant's Signature

Board of Directors' Action: _____
Date

Forwarded by Membership Committee. Approved as:

ACTIVE	ASSOCIATE	STUDENT

 Reviewed by Board of Directors Approved as:

ACTIVE	ASSOCIATE	STUDENT

_____ Signature

NOTE: Both sides of this application must be completed.

Please attach a check or money order (\$20.00 for Active and Associate applicants, \$10.00 for Student and Emeritus applicants) to your completed application and mail it to Membership Chairman, Geophysical Society of Houston, 7457 Harwin, Suite 301, Houston, TX 77038. All information is subject to verification. Applicants for Active Membership will be granted Associate Membership status pending review by the GSH Membership Committee. Applications must be approved by the Geophysical Society of Houston's Board of Directors.

Geophysical Auxiliary News:

FEBRUARY BRIDGE:

Our popular game of the day will be held at the HESS building from 10:00am to 3:00pm Monday, February 8. Come and join the group.

MARCH:

The Spring Brunch to held Sunday, March 14, 1999 at Lakeside Country Club is also a very special treat because husbands and friends are also included to enjoy delicious food, fellowship and good music by George Garza at the piano.

Jeanne Cooley. (713) 665-8432.

GSH Sponsors Teachers for Earth Science Workshop

The GSH sponsored four science teachers from middle schools and high schools in the Houston area to attend the Earth Science Workshop at the recent SEG convention in New Orleans. Expenses were paid for these teachers to attend a two-day educational workshop on the Saturday and Sunday immediately prior to the convention. The SEG also provided them with complimentary delegate registration so that they could attend the exhibition and technical meetings. Each teacher was provided with a set of rock and mineral samples, a manual of materials for use in the classroom, a set of seismic/geologic cross-sections, and instructions for a variety of classroom exercises designed to expose students to the skills and creativity needed for a career in geology and geophysics. As you will see from some of the comments on the program from the Houston area teachers who attended, the results were very worthwhile:

“The notebook filled with lesson plans and classroom materials is something that I will be able to refer to often. Some of the teaching tips were new to me, some I had seen or employed myself in teaching situations before. But the sharing of ideas by the presenter and participants is always valuable. One of the techniques presented on Saturday was the oil exploration game. I really liked the actual well logs and real field data provided to us. It will provide a real life learning situation during an energy unit. The seismic line provided to all of us is another tool that will make the concepts more real to the student.”

“Within one week of returning, two of our teams started using the materials. The great thing about the workshop was that all the materials were ready to be implemented. The students enjoyed the games and learned a lot from all the “hands on” activities. The set of rocks was great because our school did not have a good set. The logistics of the entire weekend were great. The shuttle service was very convenient. Actually, all of us were treated very special and it was wonderful to have a chance to get to know the teachers from Louisiana.”

“Please believe me when I tell you this workshop was outstanding. I appreciate everything that was done to give me the opportunity to attend. Please do not drop this program. School budgets are getting smaller and money is not always available for workshops. We are working to make our teaching more “real world” and to prepare our students for the future.”

DISC Review

The 2nd inaugural Distinguished Instructor Short Course (DISC) was held last month at the Marriott Westside. Dr. Phil Schultz, the '98-'99 Distinguished Instructor, was introduced by Dr. Peter Duncan, the SEG DISC coordinator from the Continuing Education committee. Phil spoke on the interpretive value of velocity volumes derived from 3D seismic surveys.

As a result of the short course, GSH added 50 new members and SEG added 14 new members. The course was sold out by pre-registration, attesting to the popularity of the subject and speaker. A total of 187 people attended the short course, making it one of the largest technical gatherings of the year for the GSH (still surpassed, of course, by the Spring Symposium!).

Many thanks to our volunteers (Shane Coperude and Steve Johnson), as well as to the SEG staff (Ruth Ives), and the GSH staff (Annette Mather and Joan Henshaw). An extra-big thank-you goes to Laurent Meister of Baker-Hughes-Western Geophysical for sponsoring the coffee and pastries that got us jump-started in the morning!

New GSH Members Approved at the December Board Meeting:

James W. Higgins

Mait Hakan Karazincur

Gretchen Sauder

David A. Disher

George J. Dallas

Greg Doll

FEBRUARY 1999

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1	2	3	4	5	6
7	8	9	10 GSH Technical Breakfast	11	12	13
14	15	16 GSH Technical Luncheon	17 Data Processing SIG Dobrin Lecture U of H	18 NEWSLETTER DEADLINE	19	20
21	22	23	24	25	26	27
28						

GEOPHYSICAL SOCIETY OF HOUSTON

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