



# Geophysical Society of Houston

VOL. 34, NO. 7

NEWSLETTER

MARCH 2000

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### GSH Directory 2000

Deadline to change your information in the 2000 Membership Directory will be May 1st, 2000. Send changes to the following numbers:

**Phone: 713-785-6402**  
**Fax: 713-785-0553**  
**E-Mail: joan@hgs.org**

## Joint AAPG-SEG Distinguished Lecture 1999-2000

**Date:** Tuesday, March 21, 2000  
**Time:** 11:30am - Registration and Cash Bar  
 12:00pm - Luncheon and Talk  
**Location:** HESS Building  
 5430 Westheimer in the Galleria Area near Duke Energy  
**Cost:** \$20 for either GSH or HGS members; \$25 for walk-ins and guests  
**Reservations:** Call 713.917.0218 or email to [reservations@hougeo.org](mailto:reservations@hougeo.org) no later than Noon on Friday March 17

**Title:** Let the Data Speak to You: How to Improve Your 3-D Seismic Interpretation



**Speaker:** Alistair R. Brown

**Abstract**  
Alistair R. Brown  
Consulting Reservoir Geophysicist, Dallas

*Let the Data Speak to You or How to Improve Your 3-D Seismic Interpretation*

There is no question about the success of 3-D seismic technology, but we can still do better. Much 3-D data remains underutilized, and some is strained beyond its limit by interpreters

with unreasonable expectations. Three-D interpretation, has become too popular for its own good - geoscientists and engineers are working on the data without adequate understanding of geophysical principles. In 2-D interpretation the seismic data added information to an existing geological model. In 3-D interpretation, we must let the data speak to us and try to believe it, modifying geological concepts if necessary.

It takes time to interpret 3-D seismic data, but we must use this time to maximum advantage. We must use all of the data without necessarily looking at it all. We must appreciate the precision of machine autotrackers, and investigate what part of that precision is geology and what part is noise. We must become familiar with unconventional displays. Faults don't have to be recognized on a vertical section to be valid! How long will it take for everyone to embrace color and discard those old wiggles?

There is a great need for the appreciation of geophysical principles. Seismic resolution is fundamental; we must know the magnitude of the seismic wavelength in order to appreciate the resolving power of our data. This determines the minimum thickness of flow units about which our engineers can discern information. We must correlate seismic to geology on character, not simply time, and be alert to phase distortion as we do so. Seismic attributes are wonderful, but they lack independence and should not be subject to too much statistics.

*Technical Luncheon continued on page 3*

**GEOPHYSICAL SOCIETY OF HOUSTON**

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## Editor's Note

To insure your information reaches the GSH society members in a timely manner it must appear in the in the appropriate newsletter issue. Please note the following deadlines and plan your function's publicity strategy accordingly. Items must be received on or before the corresponding deadline date. Materials may be sent to patty@c@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 ..... April 2000  
**Deadline .... March 7, 2000**

Issue ..... May 2000  
**Deadline .... April 7, 2000**

Issue ..... August 2000  
**Deadline .... July 7, 2000**

## The following candidates have accepted their nominations and will run for GSH office:

**President-Elect:** Dan Ebrom,  
Dave Agarwal

**1st V-P:** Richard Verm,  
Roy Clark

**2nd V-P:** Claire Bresnahan,  
Dale Bird

**Secretary:** Steve Danbom,  
Roice Nelson

**Treasurer:** Shane Coperude,  
Josef Paffenholz

**Editor:** Patty Cardwell

## GSH Westside Technical Breakfast

**Date:**  
Tuesday, March 7, 2000

**Time:**  
Access begins at 7:00 AM, speaker from 7:30 AM until approximately 8:15 AM, with Q & A to follow, closing around 8:30 AM.

**Speaker:**  
Mike Sheffield of Magic Earth, L.L.C.

**Topic:**  
"Geovolume visualization interpretation: Components and Techniques"

The location will be at the Magic Earth Geovolume Visualization center, on the campus of the Texaco Research facility in West Houston, at the southeast corner of Briarpark and Westpark.

Enter from the north side, on eastbound Westpark, and park in visitor parking on the east side of the Visualization Dome building. Follow the sidewalk around the north side of the dome, to enter between the dome and the Research building. Any overflow parking should be in the front of the main building on Briarpark.

Enter from the north side, on eastbound Westpark, and park in visitor parking on the east side of the Visualization Dome building. Follow the sidewalk around the north side of the dome, to enter between the dome and the Research building.

Please note the registration limit of 48 attendees maximum, for an optimum viewing experience. Register early! As always, no charge for attendance or the continental breakfast, provided by our host, Magic Earth, L.L.C.

*Technical Luncheon continued from page 1*

Let the data speak!

**Education**  
Oxford University, United Kingdom, Physics  
Australian National University, Canberra, Australia; Geology

**Experience**  
1966-1972 Bureau of Mineral Resources, Canberra, Australia  
1972-1978 Geophysical Service Int., Croydon and Bedford, United Kingdom  
1978-1987 Geophysical Service, Inc., Dallas, Texas  
1987-present Consulting Reservoir Geophysicist, Dallas, Texas

**Honors and Awards**  
1975 SEG Best Presentation Award  
1986-88 SEG's Chairman of The Leading Edge Editorial Board  
1988-89 AAPG Distinguished Lecturer  
1991 SEG Distinguished Lecturer  
1994 Petroleum Exploration Society of Australia Distinguished Lecturer

1998 SEG's Special Commendation Award for his work in developing and teaching 3-D methods.

**Publications**  
Four Editions of his book Interpretation of Three-Dimensional Seismic Data (AAPG Memoir 42); published in March 1997 (previous editions: 1992, 1989 and 1986)

**Professional interests and experiences**  
Interpretation of three-dimensional seismic data, stratigraphic interpretation, optimum use of interactive workstations, and seismic reservoir identification and evaluation. He spends much of his time teaching interpretation methods and advising on interpretation problems worldwide.

**Memberships**  
American Association of Petroleum Geologists  
Society of Exploration Geophysicists  
European Association of Exploration Geophysicists  
Dallas Geophysical Society

# March Sig Meetings

## POTENTIAL FIELDS SIG

### Exploration Usage of Computed Gravity Component Maps in the Gulf of Mexico

By RON L.PHAIR

Location: HESS building, 5430  
Westheimer, Houston  
Date: MARCH 16, 2000  
Time: 5:30 Social Hour;  
6:30 Dinner; 7:30  
Presentation  
Cost: \$22.00

#### Contact:

Mike Kowalski, Chair - GSH  
Potential Fields Group, at 713-432-  
6828 (kowalma@texaco.com) by  
Tuesday, MARCH 14, for reservations.  
E-mail is best because I can confirm  
your reservation. Please HONOR your  
reservation! We must bill no-shows!

REMEMBER FOLKS, CONSIDER  
INVITING ONE OF YOUR  
COLLEAGUES OR CLIENTS WHO  
DOES NOT REGULARLY  
FREQUENT OUR PRESENTATIONS;  
TAKE ADVANTAGE OF THE THIS  
INFORMATION!

## Near-Surface SIG Meeting

Date/Time: Tuesday, March 21,  
2000, 5:30 PM  
Location: Exxon Production  
Research Complex  
Buffalo Speedway at  
Richmond Avenue  
South Tower Building  
(On Richmond)

### Characterization of Flow in a Shallow Fractured Carbonate Reservoir

#### William D. Rizer

W. D. Rizer Consulting, 25026 Sandi  
Lane, Katy, TX 77494,

(281)574-4173 rizerwd@fbtc.net

A comprehensive series of high-frequency seismic, geological, and flow surveys identified and correctly located a preferential flow path connecting two wells in a skewed five-spot test well array completed in a shallow (50 - 100 ft) fractured carbonate reservoir in North Central Oklahoma. Geological mapping of nearby pavements indicates an orthogonal fracture network in the carbonate comprised of a dominant ENE and a secondary NNW striking set of nearly-vertical extensional fractures. Analysis of core from five wells indicates the fracture system persists in the shallow subsurface.

Interference tests with one pumping and four observation wells indicate a fast response for the well furthest (300 ft) from the pumping well. Inversion of the well test data indicated a preferential flow path between the two wells, aligned parallel to the dominant ENE direction of fracturing.

High frequency (1 - 10 kHz) crosswell seismic and single-well reflection surveys successfully imaged the preferential flow pathway after air was injected into one of the wells to displace the water and make the fracture more seismically visible. The single-well survey, in particular, located a strong reflector in the carbonate 45 feet from the survey well. The presence of that reflector was confirmed by core from a deviated well which intersected the partially open fracture at the predicted location. That fracture, with average aperture estimated at 0.1 mm, completely dominated the flow in the shallow carbonate reservoir system.

William D. (Bill) Rizer is an international consultant and recognized expert in structural geology with twenty-four years of oil and gas industry research and exploration experience. He has held research and technical positions with Cities Service and Conoco. His main focus has been on developing and applying best technology for exploration and characterization of complex,

heterogeneous, and fractured reservoirs. Bill earned a BS in Geology and an MS in Geophysics from Boston College.

## DATA PROCESSING SIG

#### Topic:

**4 component seismic acquisition  
and processing**

#### Speakers:

Gerard Beaudoin, BP Amoco  
A second speaker to be identified.

Date: Wednesday,  
March 15, 2000  
Time: Social 4:30  
Presentations  
5:00 to 6:30  
Location: Hilton Hotel,  
University of Houston  
Organizers: Walter Kissinger  
Lloyd Weathers  
Directions: From I-45 South  
(downtown): exit Spur  
5 South turn right on  
University Dr. cross  
Calhoun and enter  
campus at Entrance 1  
after the stop sign and  
info booth, the Hilton  
will be on the left.  
Park in the Hilton.

For additional information contact  
Karl Schleicher by email or phone  
(karl@geodev.com; 713 782 1234)

#### Title:

3D 4C OBS Processing: The Need for  
Vector Fidelity  
by Gerard Beaudoin, BP Amoco

Over time seismic processors have grown confident in the ability of seismic sensing devices at the front end of our seismic acquisition and recording systems to faithfully represent the particle motion or pressure field of a vector wavefield. We have begun to use the small azimuthal variation of various

seismic attributes, such as stacked amplitude, AVO and moveout velocity, to more completely characterize both reservoir and overburden. The response of both the vertical geophone (on land) and the marine hydrophone to arriving energy at all azimuths is believed to be uniform. However, as we enter the brave new world of ocean bottom seismic (OBS) recording it is time to re-examine old assumptions.

The means for recording four component (4C) OBS data are very different than in the past. How can such differences influence the fidelity with which geophones represent particle motion at the ocean bottom? This talk will present preliminary data which suggest cause for concern.

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## Reality Center SIG

RC-SIG held a very successful first meeting on Monday and Tuesday, January 31st and February 1st. There were 104 signed up to attend, and 84 attended. This represented 24 oil companies, and there were 13 who expressed interest in joining the GSH. The general goal is to have a winter meeting in Houston, and a fall meeting where participants can see other application of visualization technologies. The next meeting will be held in the Detroit area in September, to see how human scale visualization centers are being used in automobile manufacturing.

Darrel Fanguy, who helped organize the RC-SIG in Europe was General Chairman of the meeting. Jeff Hume, President of Continuum Resources, set the tone with his keynote speech when he asked how many in the audience felt immersive visualization technologies would be in people's homes in five years. Everyone in attendance raised their hands.

The Monday morning research session included three talks and a panel talking about tracking devices. Bowen Loftin began by summarizing developments to immerse people visually with auto-stereo visual displays, including, binocular stereopsis, spatial/

angular separation displays, re-imaging displays, volumetric displays, and holographic displays. He then talked about auditory displays, haptic or force-feedback displays, olfactory displays, vestibular displays, and all of the issues tied to true 3-D interaction. He even described research to measure and control thought as an environment navigation and control mechanism. Lesley Gavin of the VR Centre for the Built Environment at the University College London demonstrated how they are using virtual reality to study people traffic flow in museums and public places. Hector Garcia of the UH VERI (Virtual Environment Research Institute) demonstrated and described his virtual hotel room. The research session ended with a presentation by Dean Wormel of Intersense and a panel of those who have used various tracking devices in immersive environments.

The afternoon technology session started with a keynote speech by Roger Frampton, who has a regular newsletter on virtual reality technologies and is involved in several European initiatives (VREfresh@email.msn.com). There were then two panels: Projection (Yoav Nir of Barco and John Holmes of Sony) and Integration (Leon Stuckenschmidt of Alternate Reality Corporation, Jim Angelillo of FakeSpace, James Gruening of MechDyne, Larry Paul of Panoram, Stephen McConkie of TAN, and Kim Wiseman of Trimension). The afternoon was rounded out with a talk by Frank McQuillan of SGI on "Challenges in the Reality Centre World." There was a discussion about the name, and SGI provided dinner for participants at Las Alamedas.

Tuesday started with another collaboration session between Continuum Resources visualization theaters in Houston and London. Kim Pimentel of Engineering Animation gave an interactive keynote presentation describing a browser for storing and retrieving 3-D displays generated in a visualization environment. The morning application session included talks by Gerald Kidd of Paradigm, Samantha Hanley of GeoQuest, Mike Sheffield of Magic Earth, and Jim Costigan of VRCO.

The afternoon started with Roice Nelson's talk "The Impending Obsolescence of Maps," which states we are moving away from 2-D paper presentations and to 3-D spatially integrated intelligent models. The operations session included talks by James Gruening of MechDyne, Tracy Stark of Arco, and Pat Hyde of VERI. This was followed with the RC-SIG business meeting, which ended in time for those interested in attending the UH Annual Milton Dobrin Memorial Lecture to make it on time.

Five attendees volunteered to assist with a visualization workshop for The World Future Society on Saturday the 22th of July (<http://www.wfs.org/meetings.htm>). Seven volunteered to assist with the two day Visualization Field Trip at the GCAGS on 24th and 25th of October (watch for information at <http://www.gcags.org>). The organizing committee consists of Jim Angelillo of FakeSpace (the fall meeting host), Pat Hyde of the UH-VERI, Gary Crouse of HARC, Donn McQuire of Anadarko, Frank McQuillan of SGI, Roice Nelson of Continuum Resources, and Craig York of CadCentre. The GSH contact remains Roice Nelson at 713.860.5007 or [rnelson@continuum-corp.com](mailto:rnelson@continuum-corp.com). Jim Angelillo has reported the Integrated Manufacturing Technology Institute (IMTI), who have a large Reality Center that they call the Virtual Environment Technology Centre (VETC) in London, Ontario, are a possible host of the next meeting. This lab is part of the National Research Council of Canada. It is an impressive center and an entire research facility we will be able to tour. It is dedicated to the advancement of manufacturing processes, such as metalizing of molds, rapid prototyping and laser processes. The visualization technologies at VETC include: CAVETM, Immersive WorkWall (24' long x 8' high flat wall which is edgeblended and produces stereo images in a theater like setting), 2 Stereo Review Rooms (8' x 8' stereo projected presentation systems), and an ImmersaDesk-portable stereoscopic, interactive system.

## Past Editor's Viewpoint "Communicate or Else!"

There is an intriguing parallel to our own industry getting a lot of press lately. The recent loss of two of NASA's Mars probes with a reported price tag of over \$200 million has put that agency's funding and personnel policies under a very public microscope.

Most of the rhetoric has centered on the effects of budget cutbacks and how the failures must be a consequence of NASA's mandate to explore "faster, better, and cheaper". Meanwhile, oil and gas exploration, among other endeavors, is providing a living, breathing example of an industry that has survived economic pressures by adopting exactly those three adverbs. Much economic growth in the last decade has been linked to gains in productivity while staffs are being trimmed. So the technology is available. The problem must be in using it and sharing the results.

In 1998, after Lockheed Martin, a contractor for NASA, suffered three back-to-back satellite losses, "independent panels of experts concluded that ... a loss of experienced personnel (was) largely at fault." (1). Part of the problem was that senior mission specialists were being retired or laid off to meet staffing and salary reduction goals. As a result, operating procedures for older "legacy" systems, and "institutional memory" regarding the location and use of crucial older data was being lost. Sound familiar?

Even more interesting is the failure rate that generated all this concern. When the first investigation was ordered, 63% of launches with Lockheed components had performed without problem. Compare that with probabilities of economic success for technically complex drilling projects. Wildcatting is the only job other than weather forecasting where being wrong more times than not makes a legend. Obviously steering taxpayer-funded vehicles to other planets has a much lower failure tolerance.

But the most telling information is in the technical details. Anyone who has wondered about incorrect mileage

provided by a foreign crew working in the Gulf of Mexico can smile at this. In working with spacecraft data, "NASA did not specify the actual units, but would have wanted newtons. The values provided in pound force would have been too large by a factor of 4.45" (2). This comes from an analysis by the Institute of Electrical and Electronics Engineers (IEEE), which is close to home for those who work with seismic data. How many data loaders in the business today can look at a histogram of trace data and tell whether it is IEEE or IBM floating point format? And how many surveys have been loaded inaccurately, because, again from the report: "there is no really gross mismatch in the scale of calculations made ...that can provide an intuitive hint that something doesn't add up... the unintentional substitution of one for the other apparently rang no warning bells."

The more senior workers that are now missing would presumably ring those warning bells, and further investigation of the NASA SNAFU showed that some technicians might have noticed the problem. Chief investigator Arthur Stephenson indicated during a press conference that while some on the navigation team "continued to express concern.... they did not use the existing formal process for such concerns". He stated "JPL has a special form...and the navigators did not follow the rules about filling out that form." Imagine, a government project literally crashing because somebody didn't do the proper paperwork!

Stephenson also admitted "inadequate... staffing was a contributing factor to the accident ... they were responsible for three separate missions at the same time. This was a problem of transition from the era of very large teams to when teams are very small." And "their training in team operations was inadequate" (2). Take a look at the decentralized "asset management teams" that are making multi-million dollar decisions in our companies today. How many missions are they

watching simultaneously? And how much team operations training do they have? Are we missing a critical educational need here?

Several cases have been documented where the lack of a geophysicist experienced enough to visually discriminate between State Plane feet and UTM meters has led to the mispositioning of seismic surveys. Later review showed that some staff had suspected an error, but were not comfortable enough with procedures to communicate their misgivings to other team members. Remember when a Boeing 737 crashed into the frozen Potomac because a copilot didn't assert his concerns? His last words were "that doesn't seem right." (3) We may not lose expensive vehicles or lives, but I would be willing to bet that a few wells have been drilled in less than optimal locations because of similar problems.

The lesson here is that communication, and a lot of it, is essential in a highly technical field. No one wants a plaque on a dry hole with a quote from Cool Hand Luke: "What we had here, was a failure to communicate!"

- 1) ROBERT LEE HOTZ,  
Science Writer  
Los Angeles Times  
Sunday, December 26, 1999  
*Are Failed Mars Probes the Price of Cost-Cutting?*
- 2) James Oberg  
Why the Mars Probe went off course IEEE Spectrum  
December, 1999 Volume 36  
Number 12  
Complete text available at: <http://www.spectrum.ieee.org/pubs/spectrum/9912/mars.html>
- 3) Flight Safety Digest  
JunSept 1997  
Flight Safety Foundation  
Complete text available at: [http://www.flightsafety.org/fsd/fsd\\_jun-sep97.pdf](http://www.flightsafety.org/fsd/fsd_jun-sep97.pdf)

## HGS 3D Volume Interpretation

# Software Workshop Series

8 a.m. - 5 p.m.

North Harris College, Geoscience Technology Training Center  
250 N. Sam Houston Parkway East

(just west of Greenspoint Drive on southside of Beltway 8)

PrimeView .....	(Magnolia Group) .....	March 3
VoxelGeo .....	(Paradigm Geophysical) .....	March 10
VuPak .....	(Seismic MicroTechnologies) .....	March 15
GeoViz.....	(Schlumberger GeoQuest) .....	April 7

Need a quick overview on one or more of the various 3D Volume Interpretation software on the market? Here is your chance to get hands-on training on four of them. These workshops are more than demonstrations but are not meant to replace the full-training courses. Each workshop will provide with a quick overview of one software, with opportunity to individually drive the software. Come to one, or come to several. Attendees are strongly encouraged to attend the overview symposium "Making An Impact on 3D Volume Interpretation" on March 1. Overflow classes will be scheduled as required. (see accompanying ad for symposium information).

### Symposium fee

\$ 85 Members\*  
\$ 95 Non-members  
\$125 Walk-ins

### Workshop fees

#### Members

\$ 60  
\$110  
\$160  
\$200

#### Non-members

\$ 70 any 1 workshop  
\$130 any 2 workshops  
\$190 any 3 workshops  
\$240 any 4 workshops

(\*Members in HGS, GSH, HAPL, SIPES Houston, SPE Gulf Coast, SPEE Houston, and SPWLA Gulf Coast)

To reserve a seat, send a check payable to HGS and the registration below to:

**HGS, 7457 Harwin, Suite 301, Houston, Texas 77036, Attn: 3D Volume Interp**

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

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

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ Phone number: \_\_\_\_\_

Membership in:  HGS  GSH HGS/GSH Member No.: \_\_\_\_\_

HAPL  SIPES Houston  SPE Gulf Coast

SPEE Houston  SPWLA Gulf Coast

Amount sent (US \$) \_\_\_\_\_ for the following courses:

3D Volume Interpretation Symposium ..... Wednesday, March 1

PrimeView workshop ..... Friday, March 3

VoxelGeo workshop ..... Friday, March 10 [overflow class March 14]

VuPak workshop ..... Wednesday, March 15 [overflow class March 24]

GeoViz workshop ..... Friday, April 7 [overflow class April 11]

# Spring 2000 Distinguished Lecture of the Society of Exploration Geophysicists

Date: April 18, 2000  
Time: 11:30 am  
Location: HESS Building; 5430  
Westheimer near the  
Galleria

Presented by Mike Cox

## “Static Corrections for the 21st Century”

Static corrections are routinely applied to almost all surveys. In the past, the main emphasis has been for the computation and application of datum and residual static corrections on land and transition zone surveys. For marine surveys, static corrections are used to adjust the data to a sea-level datum with the application of source and streamer corrections. In some surveys, static correction adjustments are made for calendar time-variant changes in seawater elevations (tides), salinities, and temperatures, and subwater-bottom features such as those in the Mississippi Delta. More recently, the introduction of ocean-bottom recording requires that potentially large near-surface time shifts be applied in marine processing to convert data to a sea-level datum.

A simple raypath analysis demonstrates that the vertical raypaths assumed by the application of static corrections are incorrect. Raypaths through the near-surface layers are rarely vertical, although there are many areas where vertical travel is a good approximation. The relationship of static corrections to other data processing techniques also needs to be considered; for example, a large vertical shift (static correction) followed by migration, which assumes that raypaths (wavefronts) are followed from source to receiver elevations, is obviously not an optimum approach.

To put these approximations into perspective, the potential errors in the vertical raypath assumption of static corrections will be discussed for various land and marine scenarios. This analysis will show types of near-surface

problems where static corrections represent a good approximation and those where an upgraded approach should be considered.

We should compensate for near-surface features and elevation differences with corrections which take the nonvertical raypaths in the near surface into account; that is, they need to be applied as dynamic corrections so that the time shifts are functions of reflector depth and source-to-receiver offset. Various techniques have been proposed to correct for near-surface irregularities in addition to static corrections, and these will be reviewed. These techniques include wave-equation datuming, layer replacement, model-based ray-traced time shifts (dynamic static corrections), offset-dependent static corrections, and depth migration.

Velocity-depth models are required for procedures such as NMO corrections, static corrections and depth migration. In the case of static corrections, such a model is limited to the near surface which varies from a simple one for source and streamer depths of a marine survey, to potentially very complex models for some land surveys. A detailed near-surface model is required for wave-equation datuming and layer replacement, and in the marine case, this requires water velocity and water depth profiles. Techniques such as model-based ray-traced time shifts require both near-surface and deeper velocity-depth models, although some implementations have used simple models at depth. This model requirement often places limitations on approaches that can be applied to a data set, and is dependent on the sensitivity of the technique to errors in the velocity-depth models. Aspects of this error sensitivity will be discussed.

Many of the techniques used in geophysical data analysis are based on approximations, but generally constitute a practical or pragmatic approach to solve a specific problem; this is certainly the case for static

corrections which, in spite of their shortcomings, have served the industry extremely well. Is it now time to phase out their usage for certain types of near-surface conditions so that their application is consistent with the wave equation?

## 2000 Spring Distinguished Lecture



### Mike Cox

Mike Cox graduated with a B.Sc. in physics (1960) and a M.Sc. in geophysics (1961) from Birmingham University. After

service with the British Antarctic Survey, he joined Geophysical Service International (GSI) in 1964 and worked in Libya, Iran, and the U.S. before returning to the UK in 1976. Most of this time was spent as a senior technical specialist. He joined BP in 1981 and held various positions including Manager of Exploration Training and Head of Geophysical Operations for the Frontiers and International Division of BP Exploration. In 1992 he became an independent geophysical consultant. He has been a visiting lecturer at several British Universities.

Much of Mike's career has been spent working on near-surface problems and the analysis of static corrections. This started in 1964 when he computed datum static corrections using refraction arrivals on a field crew in Libya. In 1970, he developed technical specifications for a successful crosscorrelation-based automatic residual static program, and in the late 1970s for a field computer-based refraction static technique. Mike was later persuaded to put pen to paper and his book, *Static Corrections for Seismic Reflection Surveys*, was published by SEG in October 1999.

Mike has been an SEG member since 1965 and served as a District Representative on the Council in 1995-



98; he was awarded Life Membership in 1997. He is a Past President of EAGE and was made an Honorary Member in 1994. In 1993 Mike initiated, with Ken Larner, the first joint workshop of the SEG and EAGE executive committees aimed at fostering cooperation between the two societies. He is also a member of the Petroleum Exploration Society of Great Britain, and has served on several UK-based advisory and grants committees.



## GEOPHYSICAL AUXILIARY OF HOUSTON

The Geophysical Auxiliary of Houston invites you to join us for our annual Spring Brunch. It will be held on Sunday, March 12, 2000 at the Lakeside Country Club on Wilcrest. Music by the School for the Performing Arts of Houston will keep us entertained while we enjoy a delicious buffet. Lakeside is a favorite each year so don't miss this special event. Husbands and friends are always included at this annual event. The cost for each auxiliary member, society member, or spouse is only \$20.00 for each person. The cost for each guest is \$22.00. For details and reservations call Jean Reeves at 281-438-5877 or Jane Hasenpflug at 281-265-1808.

April 11, 2000 will find us at Round Top Herb Gardens. We will tour the Herb gardens and enjoy lunch. Lunch will be followed by a talk on the lore, legend and use of herbs. There will be time for browsing in the antique stores also. Jane Hasenpflug can give you details on this trip at 281-265-1808.

To join our fun group and enjoy all our activities and make many new friends, call Georgeann Massell at 281-353-7894.

Dues for the rest of the year are only \$5.00.

Carol Gafford - GSH Liaison

## ALBERT W. BALLY SPRING 2000 SYMPOSIUM AND FEST

A symposium in honor of Bert Bally, Professor Emeritus at Rice University and Past President of Geological Society of America, will be held in Houston on Thursday and Friday, April 13 and 14, 2000. The Albert W. Bally Symposium will bring together an international group of world-renowned geoscientists to honor Bert's great insight in combining geology and reflection seismology - a hallmark of all his research and teaching. Bruno d'Argenio (Italy), Daniel Bernoulli (Switzerland), Sierd Cloetingh (The Netherlands), Carlos Cramez (France), John Dewey (Great Britain), Carlo Doglioni (Italy), Robert Ginsburg (Miami, Florida) Chris Harrison (Alberta, Canada), Martin Jackson (Austin, Texas), Art Sylvester (Santa Barbara, California), Bruce Trodggill (Boulder, Colorado), Paul Weimer (Boulder, Colorado), and Martha Withjack (Dallas, Texas) will give technical presentations that focus on regions of the world such as the Apennines, the Canadian Cordilleras, and Gulf of Mexico, where Bert has conducted research for almost five decades. Jorge Carnevali (PDVSA), Marlan W. Downey (President Elect of AAPG), Jean Michel Fonck (TOTALFINA), and Alfredo Guzman (PEMEX) will offer unique insights on the future of oil and gas exploration at the beginning of the third millennium.

Simultaneously, "Bert Fest" presents the opportunity for participants to celebrate Bert's life-long achievements and dedication to the advancement of Geology and Geophysics. "Bert Fest" will consist of three events: a late afternoon reception and an evening banquet on Thursday, April 13, and an evening festival to conclude the symposium on Friday, April 14.

Those interested in attending should contact the Department of Geology and Geophysics at Rice University (geol@rice.edu).

## Death Notices/ Obituaries

**RAY W. WALLING** died January 20, 2000. Mr. Walling was born October 20, 1911 in Amarillo, Texas. He graduated from Amarillo High School in 1929 and from the University of Texas with honors. Mr. Walling was a respected geophysicist working full time until he was 75 years of age. His longest tenure was with Amoco Oil Co. Mr. Walling was a member of the Arabia Shrine Temple where he participated with the Chanters and Greeters.

## MEMBERSHIP REPORT

**1/13/2000 • 2/10/2000**

### Active

Tim Addington	Mark Frishman
Christine Ando	Al Frisillo
Simon Baldock	Neal Goins
Mike Bergsma	Gerald Grocock
Thomas Botts	Mark Grommesh
Douglas Bremner	Ted Hampton
Kathy Bridger	Richard Harding
Rebecca Brignac	Steve Hill
David Carlson	Walter Huber
Virginia Clark	George Jamieson
Douglas Cook	Lawrence Morley
Alfred Danforth	Daniel Quinn
Robert Dodge	Robert Rogers
Lynne Edleson	James Sewell
Bill Fahmy	Richard Sigal
Chi-Chin Feng	Simon Spitz
Michael Fenton	Michael Srozynski
Kermit Forsdick	Carl Zinsser

### Associate

Hilla Barzilai- Abileah	Nick Lanzo
Paul Anderson	Kevin Maloney
William Behrens	William Mason
Mark Bogaards	Ian Meades
Don Broussard	German Molina
Grant Crandall	Turgut Ozdenvar
Diana Dana	Chengbin Peng
David Dietz	Amber Price
Timothy Elford	Kurt Sellars
Paul Feldman	Terry Stelman
Jeremy Greene	Karl Street
Joe Greenberg	Michael Thornton
Christopher Hatcher	Elliott Vaughn
Ruth Kurian	Barbara Yantis
	He-Zhu Yin

### Student

Aron Azaria



# 7th ANNUAL GSH/HGS/HAPL BASS TOURNAMENT

## April 1 & 2, 2000

This year the 7th 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! There are also other accommodations available in the area as well.

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

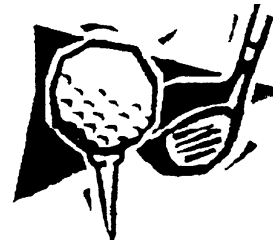
NAME: \_\_\_\_\_ AFFILIATION: \_\_\_\_\_  
ADDRESS: \_\_\_\_\_ PHONE: \_\_\_\_\_  
PARTNER: \_\_\_\_\_ AFFILIATION: \_\_\_\_\_  
PHONE-OFFICE: \_\_\_\_\_ PHONE-HOME: \_\_\_\_\_  
E-MAIL: \_\_\_\_\_

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 \$ \_\_\_\_\_



## Golf Tournament and Dinner Geophysical Society of Houston



DATE: Monday, May 22, 2000      FORMAT: Four Man Florida Scramble  
PLACE: Kingwood Country Club      COST: \$115.00 Members and Guests  
TIME: 9:30 AM Registration      DEADLINE: April 15, 2000  
11:30 AM Tee off (Shotgun)

**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

## GeoQuest Forum2000

# Connected Decisions

Austin, Texas  
Renaissance Hotel  
March 22, 2000  
Welcome Reception  
March 23-24, 2000 Forum 2000

Today, oil and gas companies must combine data and information delivery; risk-based asset management; and domain expertise at key decision points to stay ahead of the competition. For information on how to better connect these critical components of your decision process throughout all levels of your organization, make plans to attend Forum2000.

Forum2000 is a two-day program for decision-makers, influencers and asset-team members of the exploration and production industry. At Forum2000 you will learn more about how GeoQuest can help you refine your ability to quantify risk and manage assets throughout your reservoir life cycle; provide innovative services to foster collaboration among your asset teams; or devise a data management strategy that meets corporate objectives. Importantly, GeoQuest offers solutions supported by a team of knowledgeable experts, leading-edge technology and flexible global service targeted toward your financial and technical objectives.

Regardless of your position or expertise, we invite you to participate fully in our executive presentations, various product demonstrations and workshops, insightful client technical presentations and interactive exhibits designed to offer you tools necessary to make confident decisions and implement solutions for desired results.

Mark your calendars to join us at Forum2000 and tap into a reserve of answers to chart your course for success in the new millennium.

For registration information contact Philip C. Crouse & Associates, Inc. (214)-841-0044. For abstract submission details, please contact, Karen S. Glaser, Ph.D, GeoQuest (713) 513-2744.

## Highlights of the SEG-sponsored Sessions at the 2000 Offshore Technology Conference

### May 1-4, 2000

#### Houston, Texas

Technical Luncheon (May 3, 12:00) "The Importance of New Frontiers to Meet the Global Energy Demand in the 21st Century."

Steve Cassiani of ExxonMobil addresses the projected increase in oil and gas consumption as an increasing part of the world's total energy demand, and the ensuing potential demand/supply gap. Companies must not only focus on where, but also on how to explore for and produce hydrocarbons. A company's success will depend on how they obtain maximum value from technology and, most importantly, from their people, their knowledge, and ability to understand and apply fundamental scientific principles.

#### **Reservoir Characterization (May 1, 9:30 - 4:00) - co-sponsored by AAPG and SPE**

Neal Goins for ExxonMobil will emphasize integration of multi-disciplinary technologies as key to effective reservoir description. William Bashore of RC2 will then build on this integration theme and underscore emerging technologies. Papers include fluid and lithology using marine 4-C seismic, over-pressure detection with Vp/Vs estimates, inversion of 4-D seismic and Production data, application of neural networks to 3-D seismic for fluid and lithology volumetrics, refining reservoir definition using depth modeling, angle dependent seismic inversion, and geostatistical seismic modeling.

#### **Multiple Attenuation (May 2, 9:30 - 4:00)**

Dodd DeCamp of Arco will describe the challenge of discovery, delineation, and development of new,

high quality resources while it is becoming increasingly difficult to achieve economic success in the face of complex, costly and challenging technology requirements. Removing multiples from seismic data to make the data suitable for wave theoretic imaging can improve imaging in complex settings and meet the challenge. Papers will cover specific technical responses and general strategic approaches to the challenges and authors will exemplify the issues with synthetic and field data examples.

#### **Geophysical Technology (May 2, 9:30 - 12:00)**

From gathering premium quality seismic data and transmitting it back to the processing center as quickly and inexpensively as possible to the sophisticated imaging techniques that are required to accurately delineate a reservoir, this session spotlights the application of diverse geophysical technologies to maximize exploration and production efficiency.

#### **4D Seismic: Evaluating Reservoir Dynamics (May 3, 9:30 - 4:00) - co-sponsored by AAPG and SPE**

Karl Berteussen of PGS will relate progress in 4-D acquisition technology and the impact on field development risks and economics. Roger Anderson of Columbia will illustrate the economics of 4-D reservoir management with case histories. Papers, which will emphasize business relevance, will cover acquisition, processing, determination of resolution by stochastic simulation, calibration of seismic, well, and field performance data, AVO effects linked to fluid movement and pressure changes, and using 4-D seismic to optimize field simulation and development.

# MARCH 2000

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			<b>1</b> HGS 3-D Symposium	<b>2</b>	<b>3</b> HGS PrimeView Workshop	<b>4</b>
<b>5</b>	<b>6</b>	<b>7</b> NEWSLETTER DEADLINE  GSH Technical Breakfast	<b>8</b>	<b>9</b>	<b>10</b> HGS VoxelGeo Workshop	<b>11</b>
<b>12</b> Auxiliary Spring Brunch	<b>13</b>	<b>14</b>	<b>15</b> HGS VuPak Workshop  Data Processing SIG	<b>16</b> Potential Fields SIG	<b>17</b>	<b>18</b>
<b>19</b>	<b>20</b>	<b>21</b> Near Surface SIG  GSH Technical Luncheon	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>
<b>26</b>	<b>27</b>	<b>28</b>	<b>29</b>	<b>30</b>		

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