Pay Sand Mapping using Seismic multi-attribute calibration proved to be effective from Development to Near Field Exploration stages: A Case Study from De Soto Canyon, Gulf of Mexico

E. Pavanel, M. Fervari and A. Corrao, Eni E&P Milan
M. Gallagher and B. Ciurlo, Eni US Operating Co. Inc. New Orleans

Abstract
Reservoir characterization using elastic attributes has become a routine practice in oil industry. Our experience in the GOM has shown that P-impedance derived by acoustic impedance (AI) processing followed by a multi-attribute calibration, can be effectively used to assess pay thickness and characterization of reservoir quality. This methodology requires a minimum time-cost expenditure and gives quite accurate results.

A robust petro-acoustic model can be defined when enough well data are available, to represent a significant ‘training dataset’. A multi-attribute approach is then adopted to characterize the reservoir in terms of pay sand thickness, within the ‘modeled field’. The same model, applied to stratigraphically equivalent productive targets outside the original ‘modeled field’, (‘blind test’ approach), resulted in reasonable pay thickness estimations, even if no substantial DHI’s were present.

Michael Gallagher is a Geologic Advisor with Eni Petroleum. He has worked twenty-eight years with various companies as an exploration and development geologist in the onshore, shelf, and deep-water Gulf of Mexico. He has widely varied experience in exploration technologies and play types. He started his career working the Cretaceous/Jurassic trends of the onshore Mississippi Salt Basin, moved to prospect generation and field development on the shelf in the western, central and eastern Gulf of Mexico, and most recently, worked field development and prospect generation in the central and eastern GOM deep water. He is a member of AAPG, NOGS, SEG and SGS. He has chaired and served as a trustee of several NOGS committees and the NOGS Memorial Scholarship Fund. He served as NOGS Secretary, Vice President and President (1995-1996). He served as Program Chair / Oral Sessions for the 1993 AAPG convention, and presently serves as Chair of the Ad Hoc Committee on University Support. Mike earned his Bachelor of Science Degree in Biology in 1974 from Tulane University and his Master of Science Degree in Geology in 1989 from University of New Orleans.
From our joint meeting with the New Orleans Geological Society in January 2010, pictured above is the meeting's speaker Mr. H. Leighton Steward (far left) with Shell retirees Mr. Doug Holmes, Mr. Tom Klekamp, Mr. Cyril Lobo, and Mr. Ed Picou.

Not pictured is Mr. Art Christensen, the photographer

FROM THE PRESIDENT…………………………By Eric Zimmermann

I tend to look at things in a very positive light, which can be considered optimistic or delusional. But when it comes to everything going on in the city of New Orleans and in south Louisiana, I think that we can agree that we are in an exceptional time. Maybe it’s the endorphins from the Saints winning the Super Bowl, but it seems that everything is looking up.

In our business, commodity prices are stronger, companies are getting healthier, and the Gulf is attracting new business. For the Southeastern Geophysical Society, we are nearing our annual golf tournament, about to host our friends at NOGS for a joint meeting in March, and we are about to elect a new set of officers.

I walk around the city, and it looks great. Projects seem to be moving forward. Schools are being built, streets are being re-paved, and houses are being built. People seem happy as well. Spring has come to New Orleans.

~~Eric
Wide-azimuth survey provides enhanced fracture detection

CGGVeritas has begun acquiring the Tri-Parish Line 3D wide-azimuth multi-client survey in northern Louisiana, the largest contiguous Haynesville shale survey to date.

The design of the state-of-the-art 3D wide-azimuth survey will enable enhanced fracture detection and understanding, critical parameters for exploration and production in the trend. This information will help locate the hundreds of horizontal wells that are expected to be drilled within the survey area.

DATA LIBRARY WITH A DIFFERENCE

Gulf Coast
Scott Tinley
+1 832 351 8544
scott.tinley@cggveritas.com

cggveritas.com/landlibrary
Southeastern Geophysical Society Golf Tournament  
March 18, 2010  
Tchefuncta Country Club, 2 Country Club Park, Covington, LA, 9:00 AM Shotgun Start

Come join us for our annual Scholarship Fundraiser and Golf Tournament on Thursday, March 18th, the day after Central Gulf of Mexico Lease Sale 213. Our Spring Golf Tournament is the main source of funds for the SGS Scholarship Fund. These scholarships are an important contribution to the promotion of scholastic excellence, and your participation in the golf tournament will support this worthy cause. Sponsorship opportunities are available at the following levels:

- **Platinum**: $1,000
- **Gold**: $500
- **Silver**: $250
- **Hole**: $100

Companies are encouraged to provide “Ditty Bag Fillers” such as golf balls, golf towels, t-shirts with logos, tees, ball markers, convention exhibit booth type give away items with logos, snacks, and “in kind” donations such as gift certificates. Recognition will be given to all sponsors.

**Your entry fee includes:**
- Cart & Green fees
- Beverages & Snacks on the course
- Skill contests, such as closest to the hole, longest drive, & longest putt
- Awards & Door Prizes
- Crawfish Boil to conclude the event

**Four Person Team Format**
Format will be a best ball four-person scramble team format.

**Registration**
Register by Friday, March 12, 2010, to allow us to provide for a successful tournament. Please direct tournament entry correspondence to one of the following representatives:

- **Ken Reynolds**  (985) 773-6288  
  kreyolds@chevron.com
- **Don Dubose**  (504) 592-5105  
  ddubose@new-orleans.westerngeo.slb.com

Mail checks made payable to “Southeastern Geophysical Society” along with registration form and/or membership form to the following address:

Southeastern Geophysical Society  
P.O. Box 57141  
New Orleans, LA 70157-7141

Membership forms must be included for all nonmembers wishing to receive membership benefits through May 2011 which include free admission to the fall social, discount luncheon admittance, monthly newsletter and more!

*Players are encouraged to arrive at the course early to provide for a prompt start at 9:00 am. The awards ceremony, door prize drawings and crawfish boil will immediately follow the tournament.*
Golf Tournament

THURSDAY, MARCH 18, 2010
Day after Central Gulf of Mexico Lease Sale 213

TCHEFUNTA COUNTRY CLUB, 2 COUNTRY CLUB PARK, COVINGTON, LA

9:00 AM .... SHOTGUN START, 4 PERSON SCRAMBLE

Fee .... $95 Members & $115 Non-members (includes membership through May 2011)
Total Rainout – Rescheduled, Non-Refundable

Included: Cart, Green Fees, Drinks, Door Prizes

Mulligans available $5 each – 2 per player maximum

___________________________

SGS GOLF TOURNAMENT REGISTRATION FORM
DEADLINE – FRIDAY, MARCH 12TH

Membership application forms must be included for all nonmembers wishing to receive SGS membership benefits through May 2011 which include member discount for the 2009 golf tournament, free admittance to Fall Social, discount luncheon admittance, monthly newsletter and more!

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Make checks payable to SGS and mail to:
Southeastern Geophysical Society
P.O. Box 57141
New Orleans, LA 70157-7141

Website: [www.sgs-neworleans.org](http://www.sgs-neworleans.org)
Registration Contact – Ken Reynolds – (985) 773-6288
kreyolds@chevron.com
Good friends, good food, and good weather last year all combined to make our golf tournament a fun and memorable day. This year promises to be even better, so locate your clubs, knock the dirt off your cleats, and join us at Tchefuncta Country Club in Covington on Thursday, March 18th. Play begins at 9 a.m. Registration form is on page 4 of this newsletter.
GPI continues to expand our 3-D database in the Gulf Coast to include onshore, state waters, along with Federal shelf and deep water Gulf of Mexico.

Larry Galloway
Phone: 985-727-6720
Email: larry@geopursuit.com
Web: www.geopursuit.com

NEW ORLEANS . 985-727-6720 . 2895 Highway 190, Suite 227Mandeville, LA 70471
HOUSTON . 713-529-3000 . 3501 Allen Parkway . Houston, TX 77019

Left: Beautiful swing!

Below: It wouldn’t be a party without Don Dubose!
Shell is a proud to support SGS.

Shell’s commitment to community and social responsibility has been in place for more than 50 years with more than a half-billion in contributions to support community, health and welfare, environmental, arts and cultural activities, various educational initiatives, including minority education, and diversity and inclusiveness programs in Houston and the U.S.

www.shell.us

Below and right: SGS members enjoying a great time at our annual golf tournament in 2009

SGS OFFICERS 2009-2010

Mike Schneider, ENI, First VP
Dave Gillis, Schlumberger, Treasurer
Mary Wildman, MMS, Editor
Eric Zimmermann, President, LLOG
Jared Bosch, Chevron, Secretary
Ken Reynolds, Chevron, 2nd VP
A gentleman always pays his bets (and this lady looks happy to take his money!)
This threesome is enjoying a day of golf at last year’s golf tournament
2009 SGS Golf tournament: Toby Roesler, ENI Petroleum, a prior past president of the SGS, calculates the distance to the next hole.
Reservoir Geophysics: Applications
11 April 2010
One-day short course at the AAPG Annual Convention & Exhibition

Venue: Ernest N. Morial Convention Center,
900 Convention Center Blvd., New Orleans, Louisiana, USA 70130

Registration and breakfast available at 7:00 a.m.
Course duration: 8:00 a.m. – 5:00 p.m.

Important: Please complete a separate form for each registrant
PLEASE PRINT CLEARLY.

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Please check box for course indication:

☐ Reservoir Geophysics: Applications by William Abriel (11 April)

New price!

Return page 1 to:
Fax: +1-918-497-5557
E-mail: cmartin@seg.org
Mail: Cecilia Martin
SEG- Continuing Education
8001 S. Yale, Suite 500
Tulsa, OK 74137 USA
Telephone: +1-918-497-5526

Course Fee
SEG or AAPG Member – US $300, Non-member – US $390 per course
(Non-member price includes membership in SEG. See end of form.)
Student Member – US $26. Student spots are currently full.
(Student space is limited. Must register using this form. Student rate not available online.)

Late Fee applied after 10 March: $55
To register online go to http://seg.org/login and login to ‘My SEG’
To find a full course description visit http://seg.org/curriculum

PAYMENT
Total Amount Due SEG: (US) $
☐ Check, draft or money order Payable in US Dollars only to “Society of Exploration Geophysicists - CE”
☐ MasterCard
☐ Discover
☐ VISA
☐ American Express
☐ Diners Club

Card Account Number
Expiration Date
Billing Zip Code

Name as it Appears on Card
Authorized Signature

Non-Member Registrants Must Complete This Section:
By hereby affixing my signature below, I attest that, pursuant to the requirements for acceptance in the Society of Exploration Geophysicists, I am actively interested in geophysics and accept the Code of Ethics for a non-member registrant at SEG.org.

Date of Birth: ______/______/______ (mm/dd/yyyy)
# Years Related Industry Experience ____________
College/University: ____________________________
Highest Degree Received: _______________________

Are you a student? Yes ___ No ___
If yes, when will you graduate? ____________________
Advisor’s name: _______________________________

Signature of Applicant: ____________________________ Date: ____________

Southeastern Geophysical Society  Reflections  March 2010
SEG Continuing Education Refund Policy

Refunds will be granted only to registrants who cancel in writing on the following basis:

- 30 calendar days or more in advance, full refund less a $50 processing fee. Cancellation will be accepted by telephone, but must be followed up in writing by email, fax, or mail.

- No refund is allowed for cancellations made less than 30 calendar days in advance. Substitution may be made at any time. Course materials will be sent to the registrant if no substitution is made.

- A late registration fee is charged for all late registrations (generally less than 30 calendar days in advance of a class). The late registration fee is not refundable, and is not included in the $50 processing fee.

- If canceling a course for low enrollment, SEG will notify participants 3-4 weeks before course date.

- SEG reserves the right to cancel a course at any time due to situations beyond our control. In this case, SEG will provide participants as much notice as possible.

- In the event a course is cancelled, registrants may receive a full tuition refund or may apply their tuition to another presentation. Substitutions are permitted; please notify the SEG Continuing Education Department in advance whenever possible.

- In no case is SEG responsible for participant expenses including, but not limited to, airfare and hotels.

RESTRICTIONS: Taping of sessions is not permitted.
Southeastern Geophysical Society
Membership Application

Fiscal Year
June 1, 2009 - May 31, 2010

Member Information

☐ New Member
☐ Renewing Member

The SGS is considering publishing an annual directory in a "Members only" portion of our website. Please check the applicable box below.

☐ Business ☐ Home ☐ Both ☐ Do

NAME

Last

First

M.I.

Professional Memberships:

SEG Status?
☐ Active ☐ Associate ☐ Student ☐ Not a member

Others:

________________________________________

Undergraduate/Graduate Schools: BA/BS:

________________________________________

MA/MS:

________________________________________

Other:

Business Address

☐ check here if this is your preferred mailing address

Company

Address

Phone

Fax

E-Mail

Home Address

☐ check here if this is your preferred mailing address

Address

Phone

Fax

E-Mail

Spouse's Name

Dues are $20 for Active and Associate Members and $10 for students. Please make checks payable to SGS and mail to:

Secretary
P.O. Box 57141
New Orleans, LA 70157-7141

Cash

Check No.

Date Paid

Southeastern Geophysical Society

Reflections
March 2010

17
We admit it. We’re seismic nodal fanatics. Always have been. Which explains our one-of-a-kind, cable-free ZNodal™ systems. They work wonders in dense urban areas and pristine wilderness, in shallow water and deep ocean regions.

In fact, our exclusive ZNodal technology is behind everything we do, from acquisition and licensing to advanced processing and imaging, bringing nodal data to life in amazing ways.

Right now, our ZNodal systems are on the job in some of the world’s most challenging fields, making a powerful difference. So when you’re ready to go nodal, count on us to lead the way. ZNodal technology: it’s what you need. It’s what we’re all about.
Volunteers needed to work the SGS table at this event on Saturday, March 20, 2010. Two shifts are available: 11 a.m.-1 p.m. and 1 p.m.-3 p.m. Service hours can be given to teen workers. To volunteer, email Lisa.kennedy@mms.gov or call Lisa at (504) 736-2794 (work) or (504) 782-7100 (cell).
EXPLORE A WORLD OF OPPORTUNITIES WITH TGS

- Non-Exclusive Seismic Surveys
- Seismic Data Acquisition
- Seismic Data Processing
- Integrated Regional Interpretations
- Well Log Data Online
- Gravity / Magnetic Data & Services

www.tgsnopec.com
Above, guest speaker Dr. Wagner accepts a commemorative Super Bowl tee shirt from SGS President Eric Zimmermann.

Ladies of the SGS Auxiliary with Auxiliary President Rosemary Austin, third from right
President:  
Eric Zimmerman (985) 833-7700  
LLOG Exploration  
1001 Ochsner Blvd.  
Covington, LA 70433  
EricZ@llog.com

1st Vice President:  
Mike Schneider (504) 593-7483  
ENI Petroleum  
1250 Poydras Street, Suite 2000  
New Orleans, LA 70113  
Michael.Schneider@enipetroleum.com

2nd Vice President:  
Ken Reynolds (985) 773-6288  
Chevron  
1250 Poydras Street, Suite 2000  
New Orleans, LA 70113  
KReynolds@chevron.com

Secretary  
Jared Bosch (985) 773-6251  
Chevron  
100 Northpark Boulevard  
Covington, LA 70433  
Jared.Bosch@chevron.com

Treasurer  
Dave Gillis (504) 592-5360  
Schlumberger  
1515 Poydras Street  
New Orleans, LA 70112  
Gillis1@slb.com

Past President  
Tim Maciejewski (985) 773-6148  
Chevron

Editor:  
Mary Wildman (504) 736-2664  
MMS, Mail Stop 5322  
1201 Elmwood Park Blvd.  
New Orleans, LA 70123  
mary.wildman@mms.gov

Prior Past President:  
Toby Roesler (504) 593-7937  
1250 Poydras Street, Suite 2000  
New Orleans, LA 70113  
Toby.Roesler@enipetroleum.com

Webmaster:  
Richard Mongan (832) 854-5725  
Chevron  
1500 Louisiana Street  
Houston, TX 77002  
Richard.Mongan@chevron.com

Outreach  
Lisa Dwyer Kennedy (504) 736-2794  
Minerals Management Service  
1201 Elmwood Park Boulevard  
New Orleans, LA 70123  
lisa.kennedy@mms.gov

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Before the Big Chill of January 2010 when nighttime temperatures in the Big Easy dropped into the low 20’s on the south side of Lake Pontchartrain for the better part of a week, many gardens in the city were abloom with tropical flowers like the hibiscus pictured above. Those who were naysayers have ended up with droopy brown gardens. Some who were wiser spent much time preparing for the cold weather, draping tarps and sheets over their tender vegetation.

It is astonishing to those who hail from northern climes to see cantaloupes and bougainvillea and hibiscus growing in December, but it’s the way of things in New Orleans.
**East Breaks** MultiClient Wide Azimuth

- **Size** - 450 OCS blocks
- **Focus** - Sub-Salt Paleogene
- **Technology:**
  - Rambform Acquisition with 4.2 km Crossline Offset
  - True Azimuth 3DSRME & TTI Beam and TTI RTM Imaging
- **Delivery** - Available Q1 2010

**PGS MultiClient Wide Azimuth - Delivering a Clearer Image Sub-Salt**