December SGS Luncheon

Thursday
December 13th
11:30 AM – 1:00 PM

La Pavillon

$30.00 pp (member)
$35.00 pp (non-member)

RSVP
Ellen Clark
Ellen Clark@Chevron.com

Featured Geological Picture

This month’s photo are hoodoo formations from the protected site at Drumheller, Alberta. Hoodoos are sandstone pillars on shale beds with a large capstone formed over millions of years. Deposited during the Cretaceous, these Horseshoe Canyon formations erode quickly. In Blackfoot mythology, they are believed to be petrified giants.

Photo courtesy of Patricia Yu
Bubble, Bubble, Tremors & Trouble: The Corne Bayou Sinkhole

By
Jeffrey Nunn

Abstract:

At the end of May 2012, methane bubbles were first observed in Bayou Corne in Assumption Parish, LA. Geochemical analysis revealed that the methane was thermogenic rather than biogenic. Additional sites of methane bubbling in Bayou Corne and nearby Grand Bayou have developed over time. Bayou Corne and Grand Bayou flow above the Napoleonville salt dome which has been an active area for oil and gas exploration since the 1920s. In addition, the dome is a site of dissolution salt mining which has produced numerous large caverns with diameters of up to 300 ft and heights of 2000 ft. Some old caverns are used for storage of millions of barrels of LNG and Butane. In addition, there are gas pipelines in the region. In mid-July, some local residents felt tremors. Microseismic activity was confirmed by the USGS at the Earthscope seismic station in White Castle, LA. The USGS set up seismic stations in the area which recorded more than 60 microseismic events in late July and the first couple of days of August, 2012. These microseismic events were located on the western side of the dome. Estimated focal depths place the events just above the top of salt. In the first week of August, 2012, a sinkhole approximately 400 ft in diameter and more than 400 ft deep at its center developed overnight just to the northwest of a plugged and abandoned brine filled cavern. The sinkhole continues to grow in size due to slumping and has consumed a pipeline right of way. Microseismic activity stopped for several weeks following the formation of the sinkhole. A relief well drilled into the abandoned cavern found that the bottom 2/3 of the cavern is now filled with sediment. A 2007 seismic survey suggests that the bottom of the abandon cavern breached the edge of the salt dome allowing direct contact with permeable formations. Recently, microseismic events have reoccurred but less frequently than before formation of the sinkhole. Geophysical logging of shallow wells has found methane in the Mississippi River Alluvial Aquifer on the western side of the Napoleonville dome.

Speaker Biography:

Jeffrey A. Nunn is the Ernest and Alice Neal Professor of Geology and Pereboom Professor of Science at Louisiana State University in Baton Rouge. He received his Ph.D. from Northwestern University working on the Thermal-Mechanical Evolution of the Michigan Basin under the supervision of Norman H. Sleep and Lawrence L. Sloss. He has been a faculty member at Louisiana State University since 1981. His research interests include: geodynamics of sedimentary basins, thermal and pore pressure history of sediments in the Gulf of Mexico and Alaska, and subsurface fluid flow with associated heat and solute transport especially along faults/fracture networks and salt structures.
Looking for the next hotspot?
(Come and explore Western Gulf of Mexico)

PGS MultiClient GULF OF MEXICO

Revealing and de-risking hotspots starts here
Lease Sale #229 in the Western Gulf of Mexico, the industries next big frontier, is open.
PGS data and experts can offer new geological insights into simplifying your path to success in this frontier territory.
Gain the perspective that can lead to new prospects, and make Western Gulf of Mexico a key part of your portfolio.

Supporting your exploration success

A Clearer Image
www.pgs.com

gominfo@pgs.com
Hi Folks!

It’s amazing that 2012 is almost over. I hope you all had fun at the Social last month. Special thanks again to SEI Inc and LLog for sponsoring the event. Hope you have a safe and happy holidays! If you have any holiday pictures you’d like to share, please send them in.

Please renew your membership to not only support our local geophysical network, but also for benefits at luncheons and socials, and access to scholarships. I would also like to reiterate our call for sponsors and advertisers.

We would like to make the newsletter more personalized to our members. If you have any articles to share, please send them in for consideration. We would also like to take this opportunity to solicit any geological pictures of interest for the Featured Geological Picture section. Another section we would love to add to both the newsletter and the website is “The History of SGS”. If anyone could help out with historic SGS-related photos or stories over the years, that would be fantastic.
Photo Wall

Special thanks to SEI Inc and LLOG for sponsoring the social event!
Offset VSP P wave and converted S wave Salt Proximity Migration Study

Han Wu*(Shell International Exploration and Production Inc.), Yingping Li, Ben Hewett (Shell Exploration and Production Company)

ABSTRACT

The salt proximity migration method is applied to Gulf of Mexico offset VSP data (OVSP). By rotating the raw data into the direct and maximum shear components, we isolate the strong signals of direct arrival P wave, top salt converted S wave, and base salt converted S wave. The salt proximity migrations using the three types of waves as input are generated. All three migration results show strong and continuous base salt images which are supplementary to surface seismic base salt imaging. The migrated OVSP results suggest that the base salt should be pushed inward, reducing the amount of salt, under the condition of given sediment model and top salt boundary. Combined with other analysis, these salt proximity migration results provide valuable information to the velocity model building and imaging in the same area.
Dear SGS members,

It is hard to believe in about ten days will be Christmas. As work starts to slow down, it is a good time for us, the brilliant and curious geophysicists, to pause and review the year. “Once in a while you have to take a break and visit yourself”. That is too profound for me and I quoted that just to impress you. However, I feel it is important to use this time to express appreciations to people supported you through the year, family, friends, mentor, colleagues. Sometime we are too busy to say thank you. On that note, I would like to thank all the SGS members who are passionate about our society and committee members who worked hard to keep SGS going.

Yesterday we listened to a great presentation from Professor Jeffrey Nunn about a sink hole (400 foot in diameter and depth) developed overnight near a salt cavern in Bayou Corne, Assumption Parish. It feels like fresh air to listen to a geology orientated talk, as well as to observe academia’s approach of treating a problem. In his talk, he also mentioned that the local residents have evacuated since the event. It really made me feel that a slight alteration of nature can make a big impact to human lives. As oil industry workers, we use latest technologies to challenge nature at all the times. It is important that we constantly remind ourselves about operation safety and our responsibilities to the society. We learned our lesson in 2010.

In January, we have invited Dr. Yingping Li, a Shell VSP expert to come to our luncheon. He will introduce to us the technology of migrating offset VSP to image base salt. Yingping has led many VSP operations in GOM and he is a good friend of mine. I am very excited about his coming presentation.

There is no cure for curiosity. Let’s take a break and recharge, and we will continue our curious journey in the new year!

I wish you a safe and happy holiday season!

Hao Zhou
Focus on Fundamentals

This is a section designed for members to share easy-to-read, high quality scientific journal articles to be used as learning resources for novices and refreshers for experienced scientists. The articles are not limited to the geophysics discipline. The collection of this section will be added to the ‘Useful Links’ of the SGS website for future reference. Only the name of the journal, issue number and page numbers are provided in consideration of copyright issues.

All SGS members, please share your recommendations with our SGS editor for monthly publication in the Reflections.

Sinkholes and pitfalls in urban geophysics

Thomas L Dobecki

The Leading Edge, August 2010 v29 no. 8 p. 944-951

Interested in sinkholes as an urban geohazard? This article talks about applying geophysics in limited study sites.
Southeastern Geophysical Auxiliary News

**Upcoming SGA Events for the year:**

- **Dec 7th**  Wine tasting event hosted by Rosemary Austin

The ladies of SGA welcome anyone that is interested.

Please contact Rosemary Austin at (504) 737-9697 for RSVP and additional information.

---

**GPI continues to expand our 3-D database in the Gulf Coast area in addition to ongoing projects in the Marcellus Shale in Pennsylvania and the Niobrara Shale in Weld County, Colorado.**

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

NEW ORLEANS  985-727-6720  2895 Highway 190, Suite 227, Mandeville, LA 70471  
HOUSTON  713-529-3000  1740 Westheimer, Suite 200, Houston, TX 77098
Information for Advertisers: 2012-2013

Benefits:

- Support the geophysical community and geophysics in southeastern Louisiana
- Exposure to major oil companies and independents working onshore as well at the Gulf of Mexico
- Advertisements are published monthly (September-June) in the society newsletter.
- Advertisements to be published in the membership directory
- Logos for full page advertisers are displayed on the SGS website along with a link to the advertisers’ own websites

Rates:

- Full Page: $1800.00 7.5" X 10"
- Half Page: $900.00 7.5" X 5" or 3.75" X 10"
- Quarter Page: $500.00 3.5" X 5" or 7.5" X 2.5"
- Business Card: $200.00 3.5" X 2"

Please contact Emily Chapp (985) 773-6308 or SGSeditor@yahoo.com

SGS would like to thank the following advertisers for their support in 2011:

- PGS
- TGS
- SEI
- CGGVeritas
- Shell
- IGC
- LLog
- Chevron
- FugroJason
- Geophysical Pursuit Inc
This section is a collection of recent headlines that are related to activities in our backyard that we would like to bring to your attention. Please go to the source website for details.


- Nov 29th BSEE and USCG signed memorandum of understanding outlining the coordination for regulation and enforcement on the Outer Continental Shelf.
- Nov 16th Interagency Working Group on Rigs to Reefs meeting on decommissioning of offshore oil and natural gas platforms and the process for converting obsolete infrastructure to artificial reefs.
- BSEE issues letter to Black Elf requiring corrective actions and performance improvement plan.
- BOEM reaching out to states and partners to restore coast and wetlands devastated by Hurricane Sandy.
- Interior announces first ever renewable energy lease sales on the outer continental shelf.
- Obama administration offers over 20 million acres in the Western Gulf of Mexico for oil and gas exploration and development. Lease sale 229 is the first under the new Five Year Program in the effort to implement a comprehensive all of the above energy strategy to expand domestic production, reduce dependence on foreign oil and support jobs. Highest bid was Chevron with $17,221,217 for Block 546.


- Vantage Drilling Company’s ultra deepwater drillship, Titanium Explorer, commences operations in the GoM.
- LLog and Blackstone enter $1.2B GoM partnership.
- Noble Energy Inc unveils deepwater discovery in the Big Bend exploration area in the GoM with 16,000 ft deep well in 7,200 ft of water.
- UK lifts shale gas fracking ban.

Odds and Ends

General News & Announcements

Any holiday pictures to share? Send them in!

Happy Holidays everybody! Have a safe Christmas and New Years and see you all again in January!

Renew Your Membership

Please renew your membership online on the website, in person at the monthly luncheons, or by letter. We need your support!

Shell is a proud supporter of SGS.

Shell’s commitment to community and social responsibility has been in place for more than 50 years. During this time, we have contributed more than a billion dollars to support community, health and welfare, environmental, arts and cultural activities, various educational initiatives, including minority education, and diversity and inclusiveness programs in New Orleans and the U.S.

www.shell.us

Proud to Call Louisiana Home
Proud to Sponsor the SGS

Visit us at www.llog.com
November 4, 2012

After a pre-Council lunch where some of the more familiar faces briefed some of the new faces what to expect, we returned to Ballroom F where Bob Hardage called the Council to order. This year, instead of the outgoing and incoming ExComs seated on stage the Parliamentarian, the outgoing President and the Chair of Council were the only persons on the platform. The credentials report was delivered that announced only 53 council members were seated (of a potential 96-100?) however 1/3 of Council was stated as being 32 members and thus, with 53 attending, a quorum was established. [Previous years have been in the order of 70 or more seated.] Poor attendance though. The various rules of order were reiterated, each Council member would be allowed to speak twice, debate could ensue for 45 minutes on a particular subject. The gallery would also be able to speak twice. A point of order was raised that a printed copy of the Annual Report was not available for each Council Member. The meeting proceeded while these were located and distributed.

We moved on to the Presidential Address. The highlights of Hardage’s term: SEG was now some 33,000 plus members strong with approx 35% being from USA (so truly Global) and approx 35% being Student Members. The new SEG Publication, “Interpretation”, was well underway with an editor chosen and the first issue slated for publication mid-2013. There would be a new Annual Meeting URTeC, the Unconventional Resources Technology Conference.

It was collaboration between AAPG, SEG and SPE, meeting in Denver in the odd numbered years, basically the onshore equivalent of OTC. In Bob Hardage’s tenure the DISC had delivered to over 1400 attendees at 30 course offerings. There had been much fostering of intersociety cooperation. SEG’s Mission statement was to advance the science and technology of applied geophysics. Hardage announced SEG’s budget had just been approved for an historic $19million, revenue exceeded expenditure by $600k, cash reserves were up to somewhere between $8-9million and there had been significant monies allocated to The SEG Foundation.

Bob Hardage bestowed a Special President’s Award to Lee Lawyer who was given the task through an ad-hoc committee to create the Council as it now stands, practically realizing the intent and purpose of the original by-laws. Changes in governance were highlighted; offices moving to 3 and 2 year terms, and with the advent of the Chair of Council it was hoped some of the barriers to communications would be broken down, feeding ExCom decisions back to Council throughout the year (being more transparent?) rather than finding things out at the 2 hour Sunday Annual Meeting Session. To me this seemed, a little wryly, to satisfy Council’s hunger by default to know what was going on rather than from any direct ExCom action which was what was really requested for them to be more open...

The President then handed over the gavel to the Chair of Council for 2012-2015 as no longer would the Society President preside
over the Council Meeting. In doing so Hardage pointed out the preliminary election for the chair had a response rate of 88% of those polled (electronically) in September and a further 86% responded to the run-off in October. The election result was ratified. As has been pointed out before, Council (and the Global Affairs committee) was assembled primarily on the back of electronic communication and if (historically) ExCom truly wanted Council involvement to ratify any of their decisions mid-year rather than have to wait for the gathering at the Annual Meeting a mid-term electronic vote could have been organized and probably achieved a quorate result. What was really disappointing was 13-15 positions on Council did not have a representative or offer an alternate to attend. GAC to address…

The minutes of the 2011 Council Meeting were approved unanimously.

The Officers’ and Committee Reports were accepted and approved unanimously.

Approved with no opposition was the motion that SEG Bylaws Article III, Section 4.b. be modified as follows:

“b. MEMBERSHIP: Membership shall begin the first day of the month following the processing of the application and payment of dues and shall be designated for that calendar year unless accepted on or after 1 October, in which case membership shall begin in the following calendar year–Annual dues of renewing members shall be payable in advance and shall be considered in arrears if not paid by 1 January of the calendar year. Members with dues in arrears shall lose all benefits and privileges of membership until such arrears are met, and no Member in arrears on 1 June shall have voting privileges that year.”

Adopted into the policies and procedures manual was the concept of a Council Medal which would be awarded from time to time to a person who is deserving of special recognition through having rendered exceptional meritorious service to the Council. It would not have to be awarded every year which would give it somewhat more prestige.

A report was given on the test of an eCommunity in District 1. In practice it turned out to be a complete failure. 8 people subscribed out of a base of 1500 GSH and 700 Active SEG members. Opportunities exist for another section to try with a given list and report back. What was intended through this Community to disseminate was communication down from the SEG and receive grass-roots feedback from the subscribers before the information became widely available e.g. in The Leading Edge or on the SEG Website.

A report was given from the newly formed SEG Real Estate franchise. A new building would be constructed in the grounds of SEG HQ and given the high rental that can be charged for office space in that prime location would return on investment extremely quickly. Pre-commitment generating much of the upfront funding is already a battle ground. SEG could move to a larger premise at virtually no cost.

The President of the SPE was invited up to speak. He detailed the SPE approach to push technology quickly rather than take time to try and test and iron out every bug before adoption. SPE see their major opportunities in the East (India, China) who will ultimately drive/increase the future demand for hydrocarbons.

With no other business the Inaugural Council meeting of the New Era was adjourned.
Trivia – historical events that occurred in the past month:

- Oil price in Dec 2008 dropped down to $37.71 after an earlier year high of $145.08
- Major earthquakes:
  Dec 1857 Great Neapolitan Earthquake at 7.0 was the 3rd largest earthquake of its time
  Dec 2004 9.1-9.3 earthquake off the island Sumatra was the 3rd largest earthquake, one of the deadliest natural disasters in recorded history
- Dec 1919 Ludger Mintrop submits German patent method for determination of rock structures
- Dec 1961 Underground nuclear explosion that was seismically heard around the world, leading to Professor Eugene Herrin pointing out seismic velocities in earth’s upper mantle are not constant

SGS Past Presentations:


It is well known that multiples cause interpretation difficulties, especially for deep-water, sub-salt deepwater multiples that obscure sub-salt events. Here we present a new model-based, predictive method that has proven effective in attenuating multiples in GOM deep water projects. Our method is similar to the extrapolation techniques of Berryhill and Kim (1986) and Wiggins (1988) because it also uses extrapolation of the recorded field to estimate the multiples. Our method differs in that it extrapolates the wavefield by beam methods and applies the predictive filters to beam components of the recorded data. The advantage of this method is that by incorporating some simple approximations, it can efficiently process three-dimensional data acquired with standard streamer recording.

2003-2004 SGS Officers Lisa Buckner, Tom Van Wagoner, Ellen Clark, Jake Brown, Richard Morgan, Bob Shank, Steve Tsai, and Ryan Smith
TGS DATA DELIVERS THE WORLD

US $1,000,000,000 invested in multi-client data over the past 3 years

Australia, Angola, The Bahamas, Benin, Brazil, Cameroon, Canada, Congo, Cote D’Ivoire, Cyprus, Denmark, Egypt, Faroe Islands, Gambia, Gabon, Germany, Ghana, Guinea, Guinea-Bissau, Greece, Greenland, Iceland, Indonesia, Ireland, Israel, Italy, Liberia, Libya, Madagascar, Malta, Namibia, Netherlands, Norway, Oman, Portugal, Russia, Senegal, Sierra Leone, Somalia, Tunisia, Togo, United Kingdom, United States and Vietnam

TGS
See the energy.

Learn more at www.tgs.com
Southeastern Geophysical Society
Membership Application Form
Fiscal Year
June 1, 2012 – May 31, 2013

We are updating our records, so please fill out all information

Member Information:

Name:
First
Last

Professional Membership:
SEG Status:  □ Active  □ Associate  □ Student  □ Not a Member

Primary Address:  □ Business  □ Home

Company________________________
Address________________________

Phone__________________________
E-mail__________________________

Secondary Contact Information: (This will only be used if we cannot contact you with the primary information.)

Phone__________________________
E-mail__________________________

Dues are $25
($10 for students: must show Student ID)
Please make checks payable to SGS and mail to:
SGS Secretary
P.O. Box 57141
New Orleans, La. 70157-7141

Cash:__________________________
Check NO.:____________________
Date Paid:____________________
Contact List

P.O. Box 57141
New Orleans, LA 70157
Web address: www.sgs-neworleans.org

SGS Executive Committee

<table>
<thead>
<tr>
<th>SGS Officers</th>
<th>SGS Company Representatives 2012-2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRESIDENT - Hao Zhou</td>
<td></td>
</tr>
<tr>
<td>Shell</td>
<td>Tel: (504) 728-7027</td>
</tr>
<tr>
<td><a href="mailto:Hao.Zhou@shell.com">Hao.Zhou@shell.com</a></td>
<td></td>
</tr>
<tr>
<td>1st VICE PRESIDENT - Shane Carley</td>
<td></td>
</tr>
<tr>
<td>Chevron USA Production Company</td>
<td><a href="mailto:ShaneCarley@chevron.com">ShaneCarley@chevron.com</a></td>
</tr>
<tr>
<td>Matt Wandstrat</td>
<td>- Baker Hughes</td>
</tr>
<tr>
<td>Richard Fossier</td>
<td>- CGG</td>
</tr>
<tr>
<td>Larry Galloway</td>
<td>- Geophysical Pursuit</td>
</tr>
<tr>
<td>David Gillis</td>
<td>- Schlumberger</td>
</tr>
<tr>
<td>Mark Growdon</td>
<td>- Chevron</td>
</tr>
<tr>
<td>Kathy Hannigan</td>
<td>- ENI Petroleum</td>
</tr>
<tr>
<td>2nd VICE PRESIDENT - Ellen Clark</td>
<td></td>
</tr>
<tr>
<td>Chevron USA Production Company</td>
<td><a href="mailto:EllenClark@chevron.com">EllenClark@chevron.com</a></td>
</tr>
<tr>
<td>Tel: (985) 773-6427</td>
<td></td>
</tr>
<tr>
<td>SECRETARY - Tonya Richardson</td>
<td></td>
</tr>
<tr>
<td>Chevron USA Production Company</td>
<td><a href="mailto:RichardsonT@chevron.com">RichardsonT@chevron.com</a></td>
</tr>
<tr>
<td>Tel: (985) 773-6681</td>
<td></td>
</tr>
<tr>
<td>TREASURER - Na Shan</td>
<td></td>
</tr>
<tr>
<td>Shell</td>
<td>Tel: (504) 728-6718</td>
</tr>
<tr>
<td><a href="mailto:Na_Shan@shell.com">Na_Shan@shell.com</a></td>
<td></td>
</tr>
<tr>
<td>EDITOR - Patricia Yu</td>
<td></td>
</tr>
<tr>
<td>Shell</td>
<td>Tel: (504) 728-6364</td>
</tr>
<tr>
<td><a href="mailto:Patricia.Yu@shell.com">Patricia.Yu@shell.com</a></td>
<td></td>
</tr>
<tr>
<td>PAST PRESIDENT - Jared Bosch</td>
<td></td>
</tr>
<tr>
<td>Chevron USA Production Company</td>
<td>Jared <a href="mailto:Bosch@chevron.com">Bosch@chevron.com</a></td>
</tr>
<tr>
<td>Tel: (985) 773-6251</td>
<td></td>
</tr>
<tr>
<td>PRIOR PAST PRESIDENT - Ken Reynolds</td>
<td></td>
</tr>
<tr>
<td>Chevron USA Production Company</td>
<td><a href="mailto:Kreymonds@chevron.com">Kreymonds@chevron.com</a></td>
</tr>
<tr>
<td>Tel: (985) 773-6288</td>
<td></td>
</tr>
<tr>
<td>WEBMASTER - Richard Mongan</td>
<td></td>
</tr>
<tr>
<td>Chevron USA Production Company</td>
<td><a href="mailto:Richard.Mongan@chevron.com">Richard.Mongan@chevron.com</a></td>
</tr>
<tr>
<td>Tel: (832) 854-5725</td>
<td></td>
</tr>
<tr>
<td>SGS Outreach Officer - Lisa Dwyer Kennedy</td>
<td></td>
</tr>
<tr>
<td>Bureau of Ocean Energy Management, Regulation and Enforcement</td>
<td></td>
</tr>
<tr>
<td><a href="mailto:Lisa.Kennedy@boemre.gov">Lisa.Kennedy@boemre.gov</a></td>
<td>Tel: (504) 736-2794</td>
</tr>
<tr>
<td>SGA Officers</td>
<td></td>
</tr>
<tr>
<td>PRESIDENT - Rosemary Austin</td>
<td></td>
</tr>
<tr>
<td>Tel: (504) 737-9697</td>
<td></td>
</tr>
<tr>
<td>VICE PRESIDENT - Glenda Evans</td>
<td></td>
</tr>
<tr>
<td>SECRETARY - Claudia Marquis</td>
<td></td>
</tr>
<tr>
<td>TREASURER - Claire La Pointe</td>
<td></td>
</tr>
</tbody>
</table>
Please contact your CGGVeritas Multi-Client Sales Manager for additional details.

Contact:
+1 832 351 8501
librariesaleswh@cggveritas.com

cggveritas.com
## Calendar of Events

### December 2012

<table>
<thead>
<tr>
<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>NOGS luncheon</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>32nd Annual GCSSEPM Foundation Bob F Perkins Research Conference</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>SGS Luncheon</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Festival of the Trees</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Celebration in the Oaks</td>
<td></td>
<td>13</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>18</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>19</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>21</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>22</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>23</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Christmas Eve / New Year’s Eve</td>
<td></td>
<td></td>
<td>24</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Christmas Day</td>
<td></td>
<td></td>
<td>25</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>26</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>27</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>28</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>29</td>
</tr>
</tbody>
</table>

### Additional Information

- **SGS event**
- **Meeting/conference/forum**
- **Festival/Holiday**
Still Think Tying Wells is a Black Art?

Fugro-Jason now offers its proven well tying and wavelet estimation technology as an independent, easy to use application on Windows.

Jason Well Tie avoids the pitfalls of traditional approaches and ensures a robust, quality tie by providing extensive QC and user guidance for interpreters, geologists and others who want to tie well geology to seismic for improved interpretation and modeling.

Visit our website to see how Jason Well Tie takes the mystery out of tying wells.

www.fugro-jason.com/welltievideo
info@fugro-jason.com