



SPWLA

—Houston Chapter News

March 2009 LUNCHEON MEETINGS

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Westside

BP Plaza
Wednesday, March 11

Reconciling Wireline and LWD Depth Measurements

by Alexander Kostin

Northside

Halliburton
Wednesday, March 18

Integrating Applications Using LWD Acoustic Measurements

by Derek Buster

Downtown

Hess Office
Tuesday, March 17

Enhanced Accuracy in Flow-unit-definition in a Carbonate Reservoir by Integrating Conventional Core Analysis with the Interpretation of Borehole Images, NMR and Conventional logs within a Stratigraphic Framework; A case study from the Permian Basin

by Vivek Chitale



March 2009

The Houston Chapter has been very busy in the last few weeks with record numbers of attendees at all the meeting locations. In particular we had Dan Buller from Halliburton present his workflow for the Haynesville Shale and we had far too many requests than we could accommodate for his talk at the Downtown meeting location. It is no coincidence that with shales being at the forefront of activity in the US industry that we decided to focus on "Shale Gas Evaluation and Completions" for the Spring Topical Conference to be held on Wednesday, May 13 at the Chevron auditorium downtown. Because of the popularity of his talk, Dan is gracious enough to speak once again at this particular event and we hope those of you who missed him the first time can catch him there.

It's also that time once again to start getting the word out concerning elections to the 2009-2010 board of the Houston Chapter. Anyone who would like to be considered for office should forward their name by March 31st (or as soon as possible) via email to secretary@spwla-houston.org. In addition, we will need a brief biography (500 words maximum) and a brief statement from the nominee to include in the ballot as to their desired position. An email ballot will be sent to all members by April 15th. As previously stated, the terms for membership to the Houston Chapter are pretty simple: if you are on our mailing list you are a member and are eligible to stand. Only the President is required to be a member of the International SPWLA.

Plans are also going forward with all the activities surrounding the 50th Annual SPWLA Symposium at The Waterway Marriot in The Woodlands, TX.

Please go to <http://www.spwla-houston.org/> for more information on the local meetings and events and <http://www.spwla2009.com/> for information on the 50th Annual Symposium.

And please note that the Downtown meeting date has changed from the normal fourth Wednesday of the month to Tuesday, March 17th.

**Joe Comisky
Houston Chapter President**



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Westside Luncheon Meeting

Reconciling Wireline and LWD Depth Measurements

by

Alexander Kostin

Date:	Wednesday, March 11	Place:	BP Plaza Conference room on 3rd floor. Westlake 4 200 Westlake Park Blvd.	Reservations:	Email: jose.silva@techsia.com
Time	Lunch: 11:30 am Talk: 12:00 Noon	Price:	Purchase lunch in cafeteria and bring to conference room.	Parking	BP Plaza Garage
Special Instructions	Everyone MUST sign in AND out at the Lobby Security desk! After receiving security badge, get your lunch and come to the 3rd floor. Follow the SPWLA signs to the conference room.				

Abstract

Depth is arguably the most important measurement made while logging. Errors in depth measurements result in inconsistent geological mapping, incorrect fluid contacts location, inaccurate reserves estimation, etc. Depth errors increase with depth driving geological uncertainties in ultra-deep wells even higher. When comparing LWD and wireline logs we often observe depth discrepancies of several tens of feet. This is not surprising since LWD logs are referenced to the driller's depth and the wireline depth is measured directly by the logging company. Typically, depth on either wireline or LWD log is assumed more accurate and is used as a reference log. This presentation will demonstrate that in a general case, neither of these logs should be given a preference, but instead environmental depth correction should be applied to both data sets. Several case studies will be presented to support this conclusion.

Biography

Alexander Kostin received M.Sc. degree in Applied Physics and Mathematics from Moscow Institute of Physics & Technology, Russia in 2003. After graduation he joined Schlumberger and worked as LWD field engineer in Caspian, project technical leader in the R&D center and is currently a petrophysicist with Schlumberger Data & Consulting Services. He has been closely involved into development of LWD depth correction algorithms.

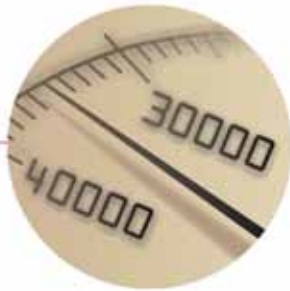
Reference papers

SPE 109972 "Improving LWD Image and Formation Evaluation by Utilizing Dynamically Corrected Drilling-Derived LWD Depth and Continuous Inclination and Azimuth Measurements" G.A. Bordakov, A.V. Kostin, J. Rasmus, D. Heliot, Schlumberger; H. Laastad, Statoil; and E.J. Stockhausen, Chevron

SPE 102175 "A New Method for Improving LWD Logging Depth" C.R. Chia, Schlumberger; H. Laastad, Statoil; A.V. Kostin, F. Hjortland, G.A. Bordakov, Schlumberger

SPE 110318 "A Technique for Improving the Accuracy of Wireline Depth Measurements" Peter Fitzgerald, Schlumberger, Bengt K. Pedersen, Statoil

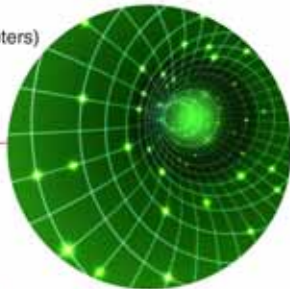
Highest pressure:
30,440 psi (210 MPa)
LWD world record
Gulf of Mexico, 2006



Highest temperature:
379°F (193°C)
LWD world record
North Sea, 2005



Highest dogleg:
61° per 100 feet (33 meters)
LWD world record
Middle East, 2007



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LWD data transmission
Gulf of Mexico, 2005



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Northside Luncheon Meeting

Integrating Applications Using LWD Acoustic Measurements

by

Derek Buster

Date:	Wednesday, March 18	Place:	Halliburton Patio Cafe (Bldg D) 3000 N. Sam Houston Parkway East	Reservations	none required
Time	Lunch: 11:30 am Talk: 12:00 Noon	Price:	Select food and pay; typically \$3-6	Parking	Enter Halliburton and proceed to the "T" just past Bldg A, turn right to park.

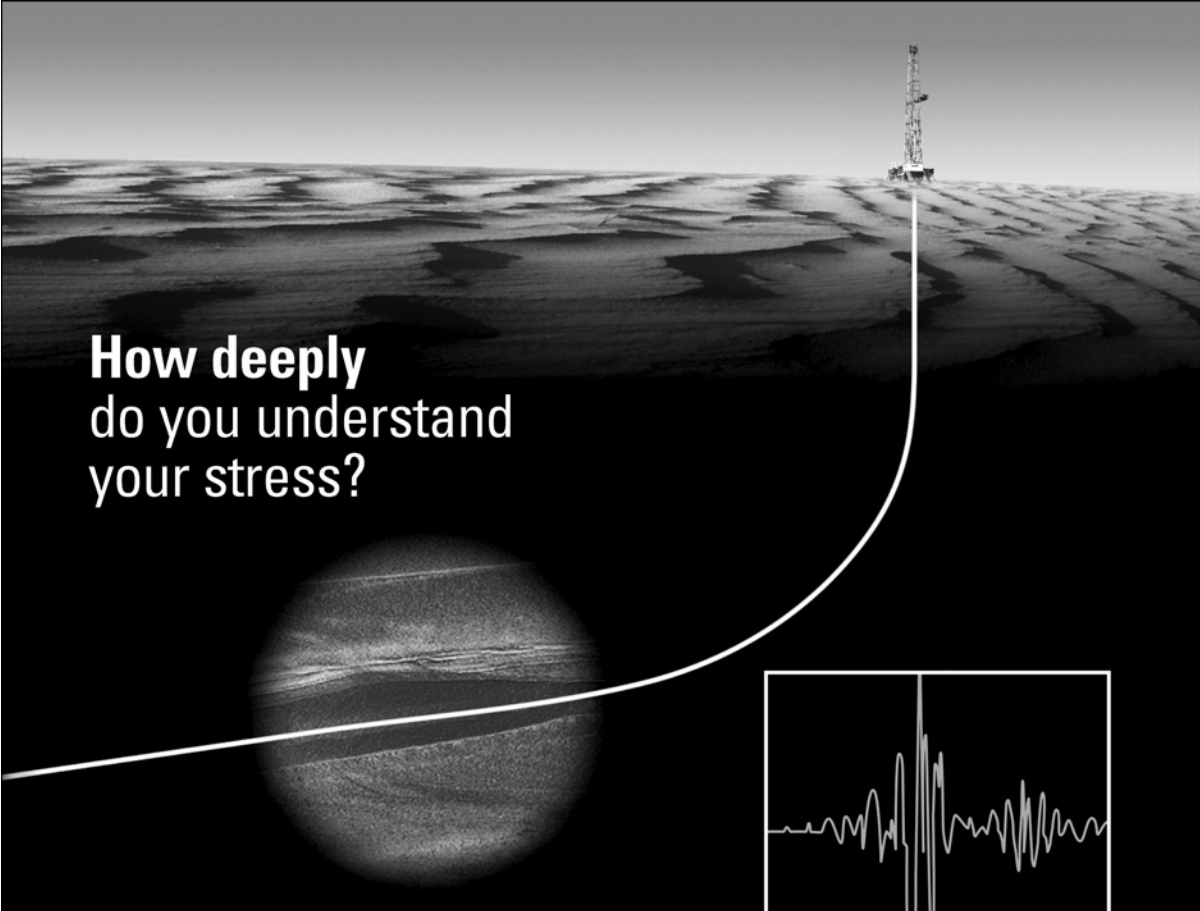
Abstract

This paper presents real-time applications of Logging While Drilling (LWD) Quadrupole acoustic measurements and their value in hydrocarbon indication, geologic hazard mitigation, and reservoir petrophysics. Quadrupole waves commonly referred to as screw waves, deliver minimally dispersive shear slowness measurements in the LWD environment. Traditionally, acoustic logging measurements are acquired from wire line instruments, generally from monopole and dipole excited modes. In a "While Drilling" application, the dipole mode is affected by a large collar wave arrival which presents challenges to resolve the true formation shear wave. Typically the processing of dipole waveforms is required after the run, and an inversion is required to deliver a formation shear measurement. The LWD dipole mode is extremely dispersive, 15-25% measurement error primarily due to borehole occupancy. All LWD dipole modes do not represent the true formation shear slowness. Quadrupole modes, which do not suffer from this direct coupling with the collar mode, allow the measurement of formation shear slowness with minimal to no dispersion, less than 5% variation in most cases.

In these presented cases, real-time Quadrupole acoustic measurements resolve the formation shear slowness. Incorporation of true formation shear data into geoscience applications such as log hydrocarbon indicators, porosity computations, and formation shear failure analysis adds value to the reservoir description almost immediately after the formation is drilled.

Biography

Derek Buster, Senior Geoscientist, B.S. in Physics. Currently a Geophysics Graduate Student at the University of Houston with 6 years of Oilfield Industry experience, 3 years as a Field Engineer, 3 years as a Geoscientist. Presently working on borehole acoustic interpretation and related geophysical applications.



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Downtown Luncheon Meeting

Enhanced Accuracy in Flow-unit-definition in a Carbonate Reservoir by Integrating Conventional Core Analysis with the Interpretation of Borehole Images, NMR and Conventional logs within a Stratigraphic Framework; A case study from the Permian Basin

by

Vivek Chitale

Date:	Tuesday, March 17	Place:	Hess Office One Allen Center 500 Dallas Street	Reservations:	Make reservations as early as possible. Call 713-609-5960 and leave a message for SPWLA Reservations or email at Kkemp@hess.com
Time	Lunch: 11:30 am Talk: 12:00 Noon	Price:	\$15 with reservation	Parking:	Regency Parking at 1100 Smith Allen Center Visitor Garage Various outdoor lots
Special Instructions:	One Allen Center is at the corner of Smith and Dallas. The Hess lobby is on the second level adjacent to the Smith Street entrance. You will need to check in through Security. Please arrive prior to 11:30 am to allow time to check in and get to the meeting room. There are numerous parking places in the area, a few of which are listed above.				

Abstract

Primary depositional facies control sediment types and sediment body geometries in carbonate systems, which in turn control primary pore type(s) and reservoir geometries. Therefore, the reservoir modeling of carbonates requires a better understanding of the original rock fabric types in addition to the knowledge of depositional facies. Accurate identification of primary rock fabric can be used to predict pore network characteristics - porosity, permeability and pore connectivity- that define a flow unit.

Accurate evaluation of a carbonate reservoir in terms of fluid flow units requires integration of critical geologic attributes determined from careful core description, including original rock type determination, depositional facies interpretation, and reservoir facies determination, with wireline log signatures. Electrical borehole images, when properly calibrated to core, can be used to identify primary facies and reservoir types in uncored wells. This paper presents the results of integrating the sedimentological descriptions of conventional cores and petrophysical analysis with the interpretation of borehole images, NMR and conventional logs.

Wireline logs and conventional core were acquired from a well producing from in a Wolfcamp carbonate reservoir in the Permian Basin for the present study. Dunham-based rock type assemblages were classified into primary depositional facies and grouped into high frequency cycle stacking patterns. Electrical borehole image was used not only for the electro facies correlation with the depositional facies but also for the purpose of estimating porosity and permeability.

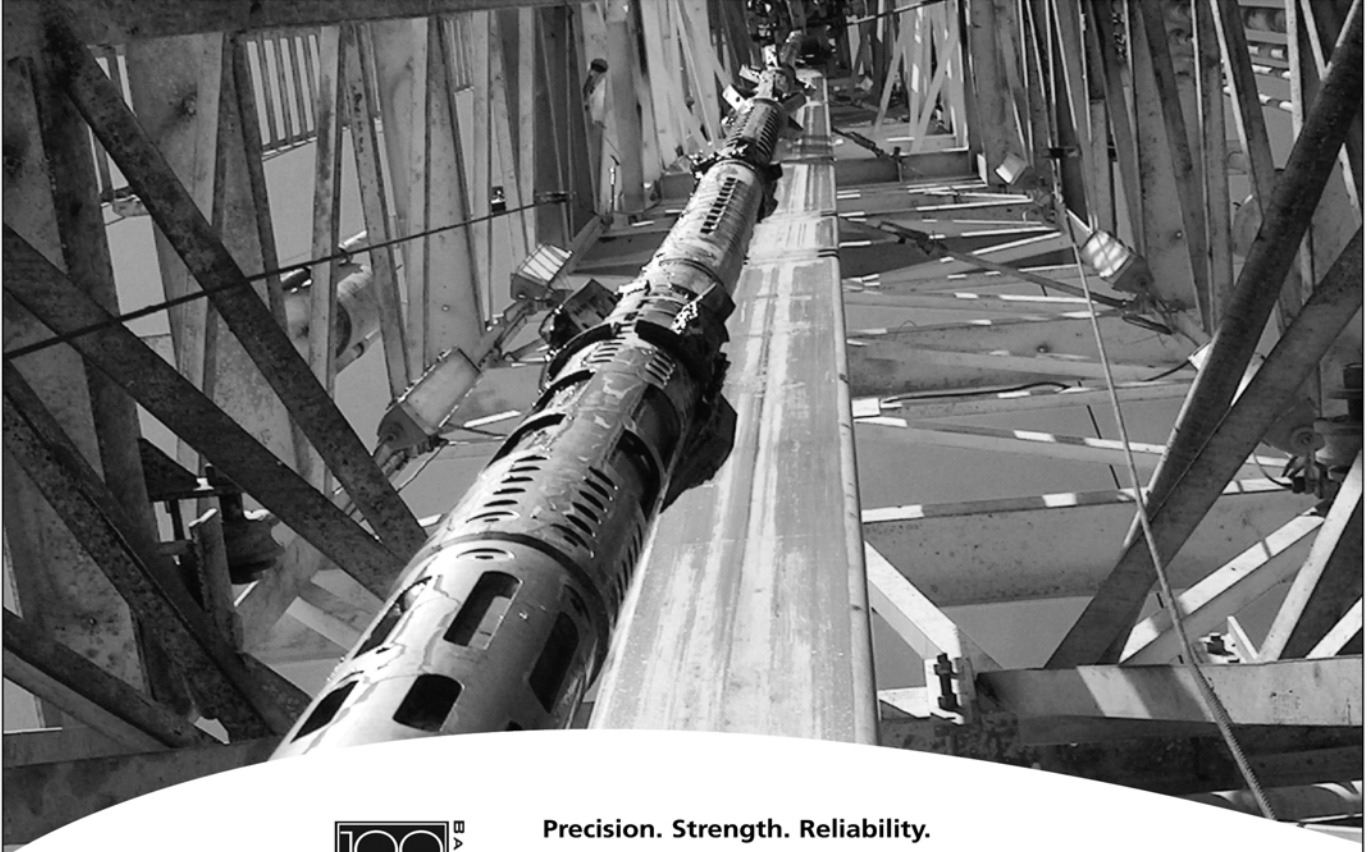
The image-log derived electro facies and bedding in the carbonate as well as the internal fabric of the carbonates (sedimentary structures and diagenetic textures such as brecciation), and the estimates of different porosity fractions and permeability determined by using the new interpretation technique closely resemble the core descriptions and conventional core laboratory analysis of porosity and permeability. These results are encouraging as these correlation(s) should be applicable in future to the newly drilled wells in the similar geological facies in the same region where there is no core control. It becomes apparent that the image log interpretation offers a unique method to enhance the accuracy in defining the flow units within stratigraphic sequences in such regions where initial calibration between the image logs and conventional cores has been accomplished successfully.

Biography

VIVEK CHITALE started his career in late 80s as a Senior Geologist with Oil India Ltd. Later he worked for Enron Oil and Gas in India as Chief Geologist for the offshore carbonate fields. karst carbonates by integrating core descriptions, core analyses and the state of the art wireline and LWD technologies Vivek is currently the Global Business Manager, Reservoir Evaluation Services, for Halliburton Wireline and Perforating based at Houston.

Co-authors: Clive Johnson, Hunter Manley, David Entzminger, Lyn Canter

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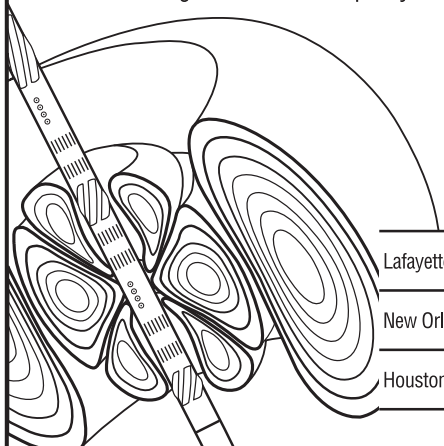
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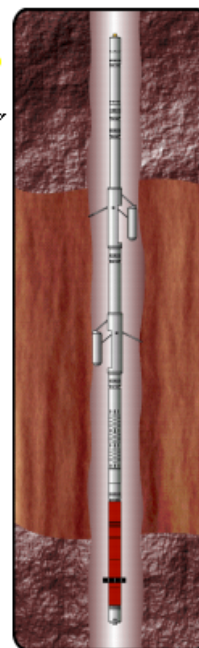
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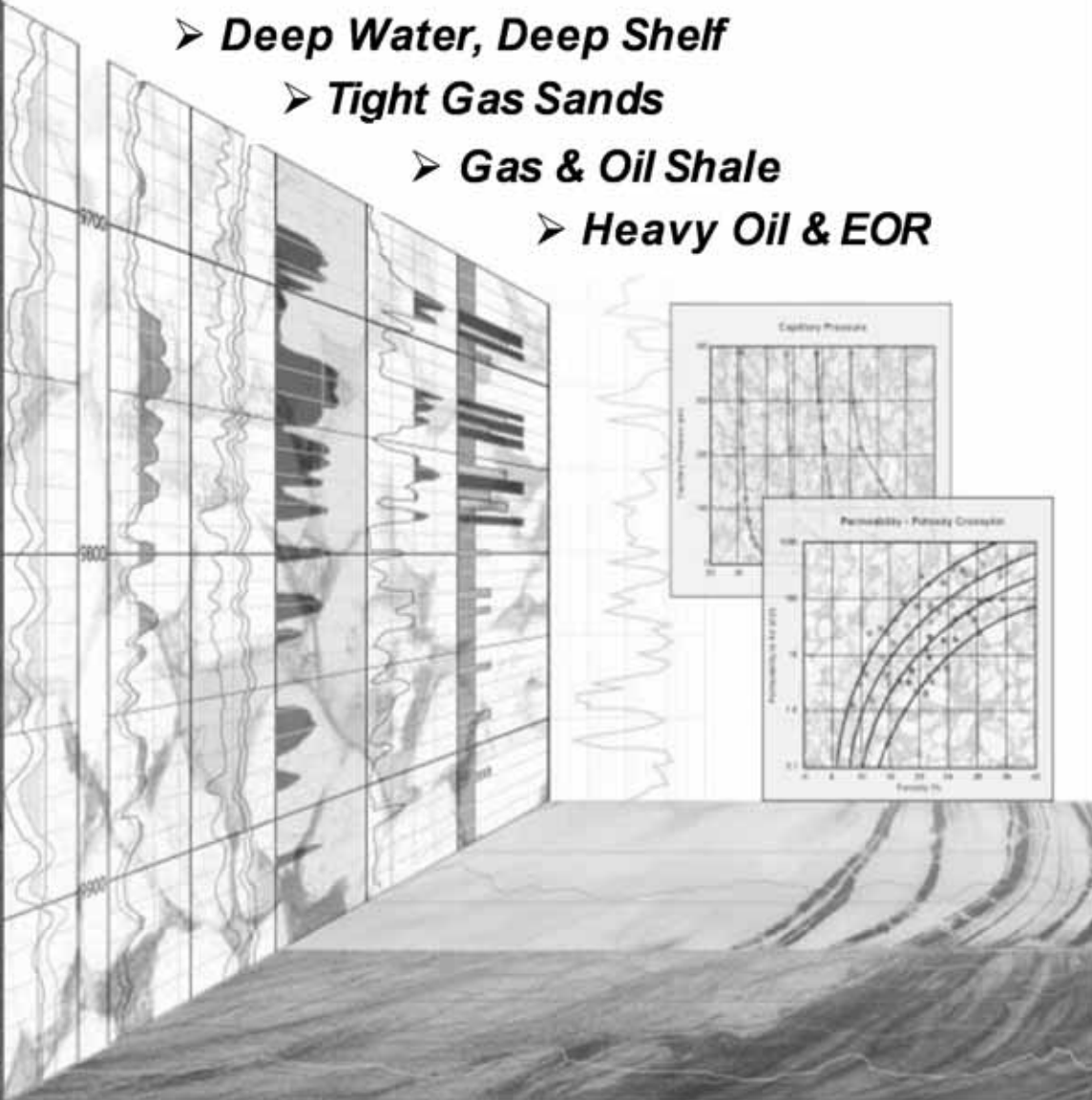
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