



NEWSLETTER September 2011

Message from the LPS President:

I write this message the day after the August bank holiday and today definitely has that back to school and holidays over feel. We should not be downhearted because the LPS evening meeting series starts again after the summer break. The evening meetings are free and all are welcome. The aim is to get together with fellow professionals, discuss petrophysical issues and share a glass or two of wine.

The next evening meeting at the Geological Society will be on Monday 5th September, 6.30pm start. Dr Peter Fitch of Imperial College will be talking about his work on “Exploring heterogeneity in carbonate petrophysical properties, from recent sediments to subsurface reservoirs”. The perceived wisdom is often that carbonates can be so complex that our petrophysical models do not work and maybe we should just live with a large level of uncertainty. I find this view frustrating and am always looking for new tools to evaluate the complex pore systems we can find in carbonates. I am sure Peter’s talk will be very illuminating and will provoke some lively discussion.

You only have a few weeks left to book your place on the “Fluids in the reservoir: understanding capillary pressure and saturation height functions“ one day seminar on Thursday 15th September. A provisional programme is included below and a registration form is attached to this newsletter, please send to Peter Fitch, p.fitch@imperial.ac.uk.

There will be vacancies for next year’s LPS Committee. Whilst we can not pay anyone for volunteering to work on the committee, you get to work with a great bunch petrophysicists, duties are not too onerous and it is fun. Any member who wishes to volunteer for the 2012 LPS Committee should email Dick Woodhouse (woodhouser@aol.com) or phone him on 01932 342677 before the next AGM on the Monday 7th November.

The final one day seminar of 2011 will be on Thursday 15th December. We aim to explore fundamentals and interpretation techniques of NMR. If you would like to present a talk at the seminar please contact me, adam.moss@bg-group.

A good friend of the LPS, Patrick Hogarty of DONG, recently sent us digitised proceedings from a series of LPS seminars from the late 80’s. The seminars covered the fundamentals of porosity, permeability and saturation. The package contained copies of the presentations and detailed text from each of the talks. A big thank you to Patrick for unearthing these treasures. If you would like copies please contact our VP Publication, Sas Parker, sasthene.parker@senergyworld.com

Hope to see you soon at one of our events.

All the Best

Adam

Adam Moss: LPS President



Dates for Your Diary

Monday 5th September 2011, LPS Evening Meeting, Geological Society, London Piccadilly. 6.30pm.

Peter Fitch, Imperial College London.

Exploring heterogeneity in carbonate petrophysical properties: from recent sediments to subsurface reservoirs.

Thursday 15th September 2011, LPS One-Day Seminar, Geological Society, London Piccadilly, Registration 9am.

Fluids in the Reservoir: Understanding Capillary Pressure and Saturation Height Functions.

Monday 3rd October 2011, LPS Evening Meeting, Geological Society, London Piccadilly. 6.30pm.

Gabriela Carrasquero, Fugro-Jason.

Rock Physics and Petrophysics Integration as part of a Seismic Reservoir Characterisation workflow. Case Study: Norwegian Barents Sea.

Monday 7th November 2011, LPS Evening Meeting, Geological Society, London Piccadilly.

6.00pm AGM

6.30pm Special Talk: David Fishman, Fugro Robertson.

Historical oil prices and forecasting.

Thursday 15th December 2011, LPS One-Day Seminar, Geological Society, London Piccadilly.

NMR - Fundamentals and Interpretation Techniques.



Next Evening Talk:

Exploring heterogeneity in carbonate petrophysical properties: from recent sediments to subsurface reservoirs.

Peter Fitch – Imperial College London

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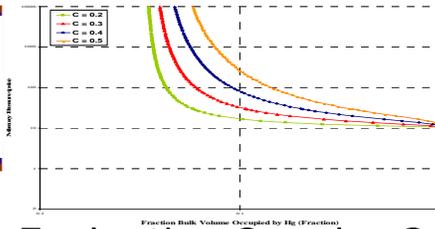
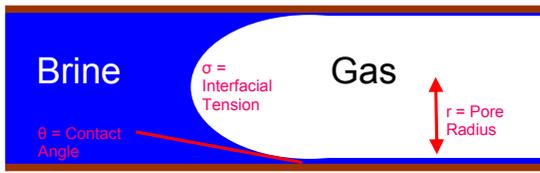
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Understanding carbonate reservoirs can be challenging due to the intrinsic heterogeneities that occur at all scales of observation and measurement. Heterogeneity in carbonates can include variable lithology, chemistry/mineralogy, pore types, pore connectivity, and sedimentary facies. It is frequently stated that carbonate heterogeneities are poorly understood, although interestingly the term ‘heterogeneity’ is rarely defined or numerically quantified. This presentation discusses how heterogeneity can be defined and how we might quantify this term by describing a range of statistical approaches (e.g. coefficient of variation and the Lorenz coefficient).

These measures are applied to a subsurface reservoir to interpret variability in wireline log data; enabling a comparison of heterogeneities between different measurements and tools, and within individual or between multiple reservoir units. A Heterogeneity Log has been produced which identifies strong heterogeneity contrasts across a suite of logs, indicating an underlying geological control, for example meter-scale geological heterogeneities in carbonate facies and mud content. By applying the same statistical measures of heterogeneity to established flow zone units it is possible to rank these in terms of their internal heterogeneity. Increased reservoir quality correlates with both increased and decreased heterogeneity depending on the type of wireline measurement and can be related to underlying geological heterogeneities and measurement types.

In a second application of heterogeneity measures to physical property data we investigate Cenozoic sediments of the Equatorial Pacific, drilled during the Integrated Ocean Drilling Programme Expedition 320, with near continuous core recovery. The application of statistical techniques for the numerical quantification of heterogeneity to these data shows that the various discrete time periods (age units) studied along the transect return consistent values allowing these age units to be traced laterally based on contrasts in heterogeneity values. Physical property heterogeneities are seen to vary with unit thickness and can be related to lithology, and the presence / abundance of bioturbated intervals and carbonate turbidite beds. We also show how comparison of this heterogeneity across three levels of physical property measurement (wireline well log, continuous and discrete core measurements) can be used to investigate and constrain the effects of sampling frequency on interpreted heterogeneity.

Current work is suggesting the use of synthetic reservoir models will allow a more detailed understanding of the impact of heterogeneity on fluid flow in carbonate reservoirs, and these models will also provide a great tool for further testing and constraining controls on the application and interpretation of heterogeneity measures in petrophysical analysis.



LPS - Formation Evaluation One-day Seminar

“Fluids in the Reservoir: Understanding Capillary Pressure and Saturation Height Functions”

Thursday 15th September at the Geological Society, London

Slot	Talk	Speaker		Affiliation	Title
09.30-10.00	1	Lovell	<i>Mike</i>	University of Leicester	Introduction to Capillary Pressures and Saturation Height Functions in Petrophysical Analysis
10.00-10.30	2	Moss	<i>Adam</i>	BG Group	Saturation Height Functions - basic concepts; J-Function & Thomeer
10.30-11.00	3	Cuddy	<i>Steve</i>	Gaffney, Cline & Associates Ltd	Saturation Height Functions – the basic concepts; Skelt Harrison and FOIL Functions
11.00-11.30		<i>Break</i>			
11.30-12.00	4	Blunt	<i>Martin</i>	Imperial College	Wettability
12.00-12.30	5	Duguid	<i>Steve</i>	CoreLabs	How a core analysis lab can make laboratory capillary pressure measurements for input into saturation-height functions
12.30-13.30		<i>Lunch</i>			
13.30-14.00	6	Zubizarreta	<i>Izaskun</i>	Senergy	Capillary Pressure Curves: Test Design, Quality Control and Implementation in Saturation Height Modelling
14.00-14.30	7	Grattoni	<i>Carlos</i>	University of Leeds	Capillary pressure measurements in low perm rocks
14.30-15.00	8	Irwin	<i>Roddy</i>	Gaffney, Cline & Associates Ltd	Fluid contacts
15.00-15.30		<i>Break</i>			
15.30-16.00	9	Davis	<i>Graham</i>	CNR Int.	Saturation Height Modelling - a practical approach (CASE STUDY)
16.00-16.30	10	Strobel	<i>Joachim</i>	RWE	Comparing saturation height function data to log data (CASE STUDY)
16.30-17.00	11	Millar	<i>Mike</i>	BG Group	A Saturation-Height Function in a North Sea Chalk Oil Field
17.00		Discussion and Closing Remarks			
		Wine & Savouries			

Registration Cost:

£150 for LPS/PESGB/AFES/SPE Members

£175 for Non-members (LPS is not VAT registered)

For further information visit:

<http://www.lps.org.uk>

or e-mail Peter Fitch:

p.fitch@imperial.ac.uk



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For further details please contact:

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