



# Reservoir Compartmentalization

## 5-6 March 2008

Wednesday 5 March	
08:30	Registration + coffee
09:00	Welcome and opening
Session 1 Introduction: impacts & approaches (chair Steve Jolley)	
09:10	<b>Mike Bowman (BP)</b> <u>KEYNOTE</u> : Tackling the challenges & minimizing the impacts of compartmentalization on reservoir performance
09:40	<b>Mark Bentley (TRACS)</b> <u>KEYNOTE</u> : Reservoir compartments: beyond fault seal
10:10	Tea / Coffee
Session 2 Detection I - fluids & pressures (chair Quentin Fisher)	
10:40	<b>Craig Smalley and Ann Muggeridge (BP)</b> <u>KEYNOTE</u> : Reservoir Compartmentalization: Get it Before It Gets You
11:10	<b>Donald Besong, Ann Muggeridge and Velisa Vesovic (Imperial College London &amp; BP)</b> Reservoir Compartmentalization and Hydrocarbon Composition
11:30	<b>E. Chuparova, T. Kratochvil, J. Westrich, C. Guillory, J. Bikun, J. Kleingeld, A. Kornacki (Shell)</b> Integration of Time-Lapse Fluid Geochemistry, Well Logging and Seismic to Monitor Reservoir Connectivity
11:50	<b>Rachel H. Páez, John Lawrence, Herb Hyatt, Adam Bucki (ExxonMobil)</b> Changes in Fluid Density: Different Compartments or Gravity Segregation? Understanding Compartmentalization in Near-Critical Fluids
12:10	<b>H. Justwan, K. Petersen, S. Dreyfus, S. Rochford (ExxonMobil)</b> Characterization of Static and Dynamic Reservoir Connectivity for the Ringhorne Field through Integration of Geochemical and Engineering Data
12:40	Lunch



Session 3 Detection II - pressures & 4D integration (chair Steve Jolley)	
13:40	<p><b>Jan Einar Ringås, Torbjørn Skille, Eirik Vik and Hans Borge (StatoilHydro &amp; Sintef Petroleum Research)</b> The Smørbukk Field – compartmentalized before the production start-up. What happened?</p>
14:00	<p><b>Stephen A. O'Connor, Richard E. Swarbrick, Phillip Clegg &amp; David T. Scott (GeoPressure Technology Ltd)</b> Vertical and lateral seal efficiency: controls on pressure and fluid distribution, Halten Terrace, offshore Mid-Norway</p>
14:20	<p><b>R.S.J. Tozer and A.M. Borthwick (BP)</b> Variation in fluid contacts in the Azeri Field, Azerbaijan: sealing faults or hydrodynamic aquifer?</p>
14:40	<p><b>Thomas Røste, Jorunn Tyssekvam, Anita Moen, Kristina Rigland, Guillaume Lescoffit, Kjell Johan Rosvoll, Ola Skjæveland, Tone Endresen, Vidar Haugse (StatoilHydro)</b> The benefits of using 4D seismic for optimizing infill wells placement in a compartmentalised reservoir – Cases from the Heidrun field</p>
15:00	<p><b>Mirosław Gainski, Paul Freeman, Alan MacGregor and Ferry Nieuwland (BP)</b> The Schiehallion Field: Detection of reservoir compartmentalisation and identification of new infill targets using 4D seismic surveys and dynamic production data</p>
15:30	Tea / Coffee
Session 4 Stratigraphic Compartmentalization (chair Bruce Ainsworth)	
16:00	<p><b>Bryan Bracken (Chevron)</b> <u>KEYNOTE</u>: Techniques in Defining Siliciclastic Reservoir Architecture and Compartmentalization: Short-Comings and Opportunities</p>
16:30	<p><b>Tom McKie, Mette Kristensen and Steve Jolley (Shell)</b> Stratigraphic and structural compartmentalization in the Triassic Heron Cluster reservoirs, Central North Sea</p>
16:50	<p><b>Fawke, A., Hansen, B.H., Høias, A., Samuelsen, B.T., and Walker, R. (StatoilHydro)</b> An integrated approach to understanding the stratigraphic heterogeneities and structural compartmentalisation of a lower coastal plain reservoir in the Norwegian Sea</p>
17:10	<p><b>Erik Scott, Francois Gelin, Tim Goodall, Ed Perry, Else Leenaarts, Simon Gould, Dave Bateman, Steve Jolley (Shell)</b> Sedimentological control of fluid flow in the Forties Sandstone Member, Pierce Field, Central North Sea, UK</p>
17:40	General discussion, notices/instructions
18:00	Wine Reception



## Thursday 6 March

08:30	<b>Registration + coffee</b>
08:50	<b>Re-connect</b>
<b>Session 5 Fault Seal (chair Sylvie Delisle)</b>	
09:00	<b>Graham Yielding, Peter Bretan, Bret Freeman (Badley Geoscience Ltd)</b> <u>KEYNOTE</u> : The Dark Art of 'Fault Seal Calibration' – a review
09:30	<b>Francesco V. Corona, J. Steve Davis, Susan J. Hippler, and Peter J. Vrolijk (ExxonMobil)</b> Multi-Fault Analysis Scorecard: Success of Stochastic Approach in Fault Seal Prediction
09:50	<b>R.W. Krantz, D.L. Van Nostrand, P.S. D'onfro, J. Deprang, P. Jonklaas, K.H. Northey, P.J. Perfetta, T.L. Campbell and L.H. Wright (ConocoPhillips)</b> An Integrated Approach to Characterizing Faults at Kuparuk Field, Alaska: the Key to Maximizing Reserve Depletion
10:10	<b>Mark Reynolds and Sylvie Delisle (Total)</b> Fault Zone Property Calibration: A North Sea Case Study
10:30	<b>Silje S. Berg, Eirik Vik, Tor Anders Knai, &amp; Jan Einar Ringås (StatoilHydro)</b> Fault parameter uncertainty in reservoir models: ranking effects of parameters on flow response in a history matched dynamic model
11:00	<b>Tea / Coffee</b>
<b>Session 6 Multi-component Compartmentalization (chair Peter Vrolijk)</b>	
10:30	<b>Joseph Hovadik &amp; David K. Larue (Chevron)</b> <u>KEYNOTE</u> : Structural and Stratigraphic Controls on Reservoir Connectivity
12:00	<b>Bruce James, Wayne Bailey, Andrew Murray, and Trey Meckel (Woodside)</b> Reservoir Connectivity at the Sunrise Giant Gas Field: A Multifaceted Study
12:20	<b>Bill Richards, Peter Vrolijk, John Gordon, Brent Miller (ExxonMobil &amp; Petro-Canada)</b> Reservoir Connectivity Analysis of a Complex Combination Trap: Terra Nova Field, Jeanne d'Arc Basin, Newfoundland, Canada
12:40	<b>M. E. Meurer, J. C. Burger, S. K. Oppert, P. J. Vrolijk, J. W. Snedden (ExxonMobil)</b> Fault impact on sweep patterns: Predicting effective cross-fault connections and comparing with 4D saturation change
13:10	<b>Lunch</b>



Session 7 Modelling (chair Mark Bentley - TBC)	
14:10	<b>Tom Manzocchi, Andrew Heath, Bala Palanathakumar, Conrad Childs and John Walsh (FAG, UC Dublin)</b> <b>KEYNOTE:</b> Sensitivity of petrophysical and geometrical fault representation on field production – a comparative study
14:40	<b>S. D. Harris, R. J. Knipe, S. Freeman, Z. Khatir, A. Brown, R. K. Davies and A. Li (RDR Ltd)</b> The influence of fault geometric and property uncertainty modelling on reservoir compartmentalisation
15:00	<b>Ron D. Thompson, Yongshe Liu, Peter D’Onfro (ConocoPhillips &amp; Stanford University)</b> Fault Property Modelling and Impact on Fluid Flow
15:20	<b>Alan Irving (Total)</b> An uncertainty analysis workflow for structurally compartmentalised reservoirs
15:40	<b>Paul Reemst and Eduardo Vargas (Shell)</b> Recent advances in assessment of reservoir compartmentalisation for deepwater fields offshore NW Borneo, Malaysia
16:10	<b>General Discussion / Debate “Reservoir Compartmentalization” (chair Convenors)</b>
16:40	<b>Final Wrap-up and Notices</b>

Posters	
<b>Victor Bense, Mark Person, Peter Sauer, Niel Plummer, Nils Cremer and Stefan Simon (University of East Anglia; Indiana University; US Geological Survey &amp; Erftverband)</b> Aquifer compartmentalization in the Lower Rhine Embayment, Germany	
<b>Glenn W Davies and Mike Tothill (BP)</b> The Use of Pre-Production Data to Assess the Risk of Reservoir Compartmentation in a Deep Marine Turbidite Reservoir	
<b>J. Steve Davis, Francesco V. Corona, Peter J. Vrolijk and Susan J. Hippler (ExxonMobil)</b> The Impact of Structural and Stratigraphic Uncertainty in Fault Seal Analysis	
<b>D Duggan, D Waltham, M Krus and S Maclean (Midland Valley Exploration &amp; Royal Holloway University of London)</b> Compartmentalized reservoirs – modelling stacked turbidite flows and the effect on the formation of petroleum reservoirs	



<p><b>Ewart Edwards (Zakum Development Company)</b> Tectono-sedimentary compartmentalization effects within Early Cretaceous carbonate reservoirs in the Middle East</p>
<p><b>Giger, S., Clennell, B., Beekman, F., Wassing, B.B.T., van Wees, J.D. and ter Heege, J.H. (CSIRO Petroleum &amp; TNO-NITG)</b> Factors influencing the formation of clay smears and associated changes in fluid transport properties across fault zones – an integrated numerical and experimental study</p>
<p><b>Caroline E. Gill, Mike Shepherd &amp; John J. Millington (Shell)</b> Compartmentalisation from Chemistry: New Insights into the Nelson reservoir from produced water sample analysis</p>
<p><b>Ilsa M. Kerscher, Francesco V. Corona, Susan J. Hippler and Charles W. Kiven (ExxonMobil)</b> Multi-fault Analysis Success Story - Total Pay Prediction in a Mature Field: An Example from South Texas, USA</p>
<p><b>Sofie Nollet, Steffen Giese, Gisa Kleine Vennekate, Janos Urai and Peter Vrolijk (ExxonMobil &amp; RWTH Aachen)</b> Finite element modeling of faulting in sand-clay layered sequences</p>
<p><b>Matthew Pachell, Bob Quartero, Ross Deutscher and Justin Foraie (Talisman Energy)</b> Contractional Tectonics and Reservoir Connectivity: A Case Study from the Bighorn Gas Field of West Central Alberta</p>
<p><b>Elodie Sallet and Christopher Wibberley (UMR CNRS Valbonne &amp; Total)</b> Evolution of brittle deformation and fault growth in high porosity sandstone: the Bassin du Sud-Est, Provence, France</p>
<p><b>Schueller S., Braathen A. (University of Bergen)</b> Statistical distributions of deformation bands and organization of fault damage zones in siliciclastic reservoirs</p>
<p><b>Wilfrido Solano-Acosta, Andrew R. Thomas, Robert Lander, Robert M. Reed and Marek Kacwicz (Chevron; Geocosm Ltd &amp; University of Texas at Austin)</b> Quantitative Modeling of Quartz Cementation along Cataclastic Fault Zones, Offshore Louisiana, Gulf of Mexico</p>
<p><b>Larry Sumpter, Kenneth Petersen, John Snedden, Mike Sweet and Peter Vrolijk (ExxonMobil)</b> Early Recognition of Potential Reservoir Compartmentalization</p>
<p><b>J. Underschultz, J. Strand, P. Bretan, B. Freeman and G. Yielding (CSIRO Petroleum &amp; Badley Geoscience Ltd)</b> Across-Fault Seal Capacity Calibration between different aquifers</p>



**Boyan K. Vakarelov and R. Bruce Ainsworth (University of Adelaide)**  
Are Ancient Shallow Marine Stratigraphic Models Oversimplified? Potential Compartmentalization  
Lessons from Holocene Regressive Systems

**F.F.N. van Hulten (Energie Beheer Nederland B.V.)**  
Geological factors influencing compartmentalization of Rotliegend gas fields in the Netherlands

**John Williams (StatoilHydro)**  
Fault Compartmentalisation at the Gullfaks Field, Norway

**J.P. Wonham, M. Cyrot, T. Nguyen, J. Louhouamou and O. Ruau (Total)**  
Integrated Approach to Geomodelling and Dynamic Simulation in a Complex Carbonate Reservoir,  
N'Kossa field, offshore Congo