

# **2nd EAGE-VPI Conference on Reservoir Geoscience 2019**

Hanoi, Vietnam  
2 - 3 December 2019

ISBN: 978-1-7138-1394-1

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2019) by the European Association of Geoscientists & Engineers (EAGE)  
All rights reserved.

Printed with permission by Curran Associates, Inc. (2020)

For permission requests, please contact by the European Association of Geoscientists & Engineers (EAGE)  
at the address below.

European Association of Geoscientists & Engineers (EAGE)  
PO Box 59  
3990 DB Houten  
The Netherlands

Phone: +31 88 995 5055  
Fax: +31 30 634 3524

[eage@eage.org](mailto:eage@eage.org)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

<p>MULTIMIN PETROPHYSICS: AN INTEGRATED RESERVOIR CHARACTERIZATION TOOL TO CONSTRUCT HIGH RESOLUTION GEOLOGICAL MODEL IN MIDDLE MARRAT FORMATION OF DHARIF OIL FIELD, WEST KUWAIT .....</p> <p style="padding-left: 40px;"><i>Adnan Al-Mutairi, Asheshwar Tiwary, Naveen Verma, Riyad Quttainah, Muatasam Al Raisi, Amaechi Ozoemena</i></p>	1
<p>REVISIT OF ROCK PHYSICS TEMPLATE (RPT) CONSTRUCTION FOR PETROPHYSICAL CHARACTERIZATION OF A GAS SAND IN THE NAM CON SON (NCS) BASIN, VIETNAM .....</p> <p style="padding-left: 40px;"><i>P.H. Giao, T. Pham H., T. Mai</i></p>	11
<p>NEOGENE DEPOSITIONAL DYNAMICS IN THE MALAY-THO CHU BASIN: EFFECTS OF REGIONAL TECTONISM AND PALEOCLIMATE .....</p> <p style="padding-left: 40px;"><i>T. Nguyen, M.B.W. Fyhn, L.O. Boldreel, I. Abatzis, H. Nguyen</i></p>	17
<p>EFFICIENT DRAINAGE STRATEGY OPTIMISATION UNDER UNCERTAINTY .....</p> <p style="padding-left: 40px;"><i>M. Stunell, J. Saetrom, S. Ducroux, L. Belazreg</i></p>	21
<p>CHARACTERISTICS OF COPPER METAL MINERALIZATION USING RESISTIVITY GEOLYSICAL DATA DIPOLE-DIPOLE CONFIGURATION IN PURWOHARJO VILLAGE, WONOGIRI DISTRICT, CENTRAL JAVA PROVINCE, INDONESIA .....</p> <p style="padding-left: 40px;"><i>A. Saputra, S. Agitra, P. Ayu, E. Muliawarman</i></p>	27
<p>TIME LAPSE (4D) SEISMIC APPLICATIONS FOR RESERVOIR MANAGEMENT IN MALAYSIA .....</p> <p style="padding-left: 40px;"><i>N. Nguyen, R. Masoudi</i></p>	31
<p>INTEGRATION OF HIGH RESOLUTION FWI VELOCITY MODEL AND BROADBAND DATA FOR ELASTIC PROPERTY GENERATION: A LOW FREQUENCY OVERLAP CASE STUDY .....</p> <p style="padding-left: 40px;"><i>C. Reiser, T. Martin, A. Long, S. Naumann, M. Farouki</i></p>	34
<p>SEISMIC ATTRIBUTE ANALYSIS SPECIFIC TO BASEMENT RESERVOIRS SETTINGS, WITH A CASE FROM CUU LONG BASIN, OFFSHORE VIETNAM .....</p> <p style="padding-left: 40px;"><i>Y. Ichie, N. Kien Trung, N. Danh Tuan, D. Duy Viet, V. Viet Ha</i></p>	39
<p>DEPOSITION, DIAGENESIS AND ITS RESERVOIR QUALITY OF SANDSTONE RESERVOIRS: A CASE STUDY IN THE CUU LONG BASIN .....</p> <p style="padding-left: 40px;"><i>Son Trung Nguyen, Anh The Vu, Hong Thi Pham, Hung Manh Le, Phong Van Phung</i></p>	45
<p>HIGH RESOLUTION PETROPHYSICAL ANALYSIS OF THINLY LAMINATED RESERVOIRS VERIFIED WITH MICP-BASED FACIES CLASSIFICATION .....</p> <p style="padding-left: 40px;"><i>T. Yamamoto, Y. Maehara, M. Kishima, K. Furuya</i></p>	50
<p>SEAL CAPACITY EVALUATION BY USING MERCURY INJECTION CAPILLARY PRESSURE METHOD INTEGRATED WITH PETROGRAPHIC DATA: A CASE STUDY IN GREEN DRAGON OILFIELD, OFFSHORE VIETNAM .....</p> <p style="padding-left: 40px;"><i>V.S. Nguyen, N.Q. Phan, V.H. Nguyen, H.M. Nguyen</i></p>	56
<p>USING PETROGRAPHY AND PROVENANCE TO RESOLVE RESERVOIR CHARACTERISTICS OF OLIGOCENE SANDSTONES, NORTHERN SONG HONG BASIN .....</p> <p style="padding-left: 40px;"><i>N.T.T. Thuy, M. Olivarius, B.H. Hoang, N.T. Anh, T.D. Cuong, M.B.W. Fyhn, B.V. Dung, J. Hovikoski, N.T. Huyen, I. Abatzis, L.H. Nielsen, T.X. Cuong, N.T. Tung</i></p>	62

CHARACTERIZATION OF MEGASCOPIC, CONNECTED VUGGY LIMESTONE THROUGH WHOLE CORE TOMOGRAPHY – A USEFUL TOOL TO CAPTURE HIGH RESOLUTION RESERVOIR PROPERTIES .....	67
<i>N. Al-khalifa, D. Dutta, D. Arora, S. Roth, M. Blunt</i>	
A SOLUTION TO PERFORATION FOR SLIM-HOLE WELLS IN BLOCKS B&48/95 AND 52/97, VIETNAM .....	71
<i>T. Le Minh, Q. Dang Ngoc, N. Huynh Thanh</i>	
CHALLENGES AND PROPOSED SOLUTIONS TO MEET OBLIGATORY GAS SPECIFICATION IN COMPLEX GAS FIELD, OFFSHORE SOUTHWEST VIETNAM .....	77
<i>N. Huynh, Q. Dang, C. Dao</i>	
CHARACTERIZATION AND EVOLUTION OF CARBONATE SEDIMENTS IN THE PHU KHANH BASIN, OFFSHORE VIETNAM .....	83
<i>H. Nguyen Thu, C. Trinh Xuan, C. Tong Duy, V. Phan Tien, T. Hoang Anh, H. Nguyen Trung, I. Abatzis, M.B.W. Fyhn</i>	
ACCUMULATION OF STRESS AND STRAIN DUE TO AN INFINITE STRIKE-SLIP FAULT IN ELASTIC LAYER OVER LAYING A VISCOELASTIC HALF SPACE OF STANDARD LINEAR SOLID (SLS) .....	88
<i>D. Mondal</i>	
RECONCILIATION OF GEOSTATISTICAL INVERSION DRIVEN LITHO-FACIES INTO GEO-CELLULAR MODEL .....	92
<i>I. Abdullah, S. Rajput, A. Khalil</i>	
AN EVALUATION OF MACHINE LEARNING REGRESSION MODELS FOR RESERVOIR CHARACTERIZATION .....	97
<i>Camellia Onn, Ahmad Izzuddin</i>	
PROPOSAL FOR A SECOND 4D MONITOR SURVEY: TECHNICAL AND BUSINESS JUSTIFICATION .....	101
<i>Amy Mawarni Md Yusoff, Alexander Tarang, M Nasim Ralim, Amri Amdan</i>	
3D STRATIGRAPHIC FORWARD MODELLING IN FRONTIER AREA OF DEEP WATER SABAH .....	106
<i>Nur Lydia Zainal, Wael Ben Habel</i>	
DEEP LEARNING APPLICATION IN TIME-FREQUENCY ANALYSIS FOR NOISE ATTENUATION .....	112
<i>R. Hamidi</i>	
BAFFLES AND CONDUITS IN MIOCENE CARBONATE RESERVOIRS AND THEIR EFFECT ON WELL PRODUCTION .....	118
<i>M. Phan T N, D. Shields, A. Mohamed A. Ali, N. Azudin, T. King</i>	
NATURAL COMPLEX FRACTURE PREDICTION USING AN INTEGRATION OF ANALYTICAL APPROACHES IN PRE TERTIARY BASEMENT IN JABUNG BLOCK, ONSHORE SUMATRA, INDONESIA .....	124
<i>M. Phan T N, C. Giraldo Ceballos, B. Isa, X. Legrand, N. Juliansyah</i>	
APPRAISING STORM SAND RIDGES IN LUCONIA SHALLOW CLASTICS RESERVOIR; FINDING DEVELOPED SAND WITHIN POOR BACKGROUND FACIES .....	131
<i>J. Ngu, A.M. Ali, M.M. Eshak, W. Suwarta, A.H. Faisal</i>	

PREDICTING STRATIGRAPHIC COMPARTMENTALISATION IN NEAR-SHORE SEQUENCES .....	136
<i>Daren Shields, Wan Mohd Nazrullah B Wan Mohamed Zin</i>	
EXTRACTING SEISMIC STRATIGRAPHIC FEATURES USING HHT .....	141
<i>S. ELKURDY</i>	
UNLOCKING THIN OIL RIM RESERVOIRS IN EOR FIELD OFFSHORE MALAYSIA WITH INTEGRATED GEOSTEERING METHODS .....	146
<i>Saraton Kawar, Dan Hui Xuan, Nor Baizurah Ahmad Tajuddin Kamaruddin, Sheikh M Razi Riza Feisal, Gagok Imam Santoso, Khairul Anuar Alang, Nurul Athirah Wahid Ali, Siti Nurfarhana M Zaid, Nashira binti Ashari, W Fadhilah W M Hanizan</i>	
MEETING THE CHALLENGES IN MULTI-COMPONENT IMAGING THROUGH FRACTURE AND CLASTIC RESERVOIRS .....	152
<i>F.C. Loh, C.H. Jiao, X.G. Miao, J. Zhou, N.L. Anh, V.V. Khuong</i>	
DEPOSITIONAL ENVIRONMENT, SECONDARY ALTERATION AND RESERVOIR PROPERTY OF LATE OLIGOCENE SEDIMENTS, TRA TAN FORMATION, CUU LONG BASIN – VIETNAM CONTINENTAL SHELF .....	160
<i>Bui Thi Ngoc Phuong</i>	
INTEGRATING MULTIDISCIPLINARY DATA INTO FRACTURE NETWORKS MODELLING: A CASE STUDY ON HIGHLY FRACTURED CARBONATE .....	166
<i>A. Vu, P. Phung Van</i>	
PROGRESSIVE TRENDS AND PRACTICES IN RESERVOIR SEISMIC ATTRIBUTES .....	171
<i>Afiqah Radzi, Camellia Onn, Liew Wei Long, Ashraf Khalil</i>	
MATURITY OF FLUID AND THE SOURCE ROCKS CORRELATION SHOWING IN BASIN MODELING RESULTS IN THE NORTHERN SONG HONG BASIN, VIETNAM .....	174
<i>T. Do, H.P. Nytoft, N. Le</i>	
INCORPORATING DEPTH-DEPENDENCY IN QUANTITATIVE INTERPRETATION THROUGH STATISTICAL ROCK PHYSICS .....	179
<i>S. Ronghe, A. Locke</i>	
CREEPING EFFECT OF A BURIED, INCLINED, FINITE STRIKE-SLIP FAULT IN VISCO-ELASTIC MEDIUM OF BURGER'S RHEOLOGY .....	184
<i>Seema Sarkar (Mondal), Piu Kundu</i>	
NEW APPROACH PROPOSED FOR RISK MANAGEMENT OF AN E&P PROJECT IN VIETNAM .....	190
<i>H.M. Nguyen, K.Q. Pham</i>	
MODIFIED HALO MODELING APPROACH A CASE STUDY OF HAI SU DEN FRACTURED BASEMENT RESERVOIR .....	195
<i>Hoang Gia Diem, Duong Tan Da, Nguyen Do Ngoc Nhi, Nguyen Tien Thanh</i>	
RPT VS ANN A COMPETITIVE STUDY AND THE APPLICATION TO THE THANG LONG – DONG DO FIELD, CUU LONG BASIN, OFFSHORE VIETNAM .....	200
<i>L.D. Nguyen, M.Q. Ta, H.T. Nguyen, B.H. Cao, H.V. Vu, D.D. Nguyen, G.P. Phan</i>	
APPLICABILITY OF EFFECTIVE MEDIUM MODELING (EMM) TO ESTIMATE GAS HYDRATE (GH) SATURATION/CONCENTRATION .....	206
<i>Pham Hong Trang, Pham Huy Giao</i>	

NEW PLAY OF PRE-TALANG AKAR CARBONATE LIMESTONE IN SOUTH SUMATRA BASIN FOR FUTURE DEEP TARGET EXPLORATION .....	213
<i>A. Permana, R. Pratama, S. Husein</i>	
DISPLACEMENT MECHANISM STUDY OF AMMONIUM ION IN LOW SALINITY WATER-FLOODING IN SHALY-SANDSTONE RESERVOIR .....	216
<i>H. Vu Quoc, F. Srisuriyachai</i>	
IDENTIFICATION OF LITHOLOGY USING MACHINE LEARNING OF GAS HYDRATE RESERVOIR IN KRISHNA-GODAVARI OFFSHORE BASIN, INDIA .....	221
<i>A. Singh, M. Ojha, K. Sain</i>	
3D DAS VSP FOR CHARACTERISATION OF THE CO <sub>2</sub> SHALLOW RELEASE SITE: CSIRO IN-SITU LABORATORY CASE STUDY .....	224
<i>K. Tertyshnikov, R. Pevzner, B. Freifeld, L. Ricard, A. Avijegon</i>	
FRACTURE CHARACTERIZATION AND GEOSTATISTICAL INVERSION OF CARBONATE ROCK RESERVOIR IN TAHE OILFIELD, NORTHWEST CHINA .....	229
<i>Q. Li</i>	
CHEMOSTRATIGRAPHIC CONSTRAINS TO EARLY TERTIARY CLASTICS IN THE CUU LONG BASIN, VIETNAM .....	235
<i>N. Wilson</i>	
SUCCESS STORY OF STRATIGRAPHIC TRAP IN NORTHERN MALAY BASIN .....	241
<i>S. Rahmad, C.M. Chew, W.D. Gan</i>	
UNCERTAINTY ANALYSIS USING PARAMETRIC METHOD FOR RESERVES ESTIMATION .....	245
<i>I. Zawawi, D. Odeara, N.H. Buniamin, S.A. M Hatta, N. Latif</i>	
ARTIFICIAL PROXIMATE LOG APPROACH USING REGRESSION ANALYSIS FOR COALBED METHANE RESERVES ESTIMATION IN BALIKPAPAN FORMATION, EAST KALIMANTAN, INDONESIA .....	249
<i>B. Rajasanegara, W. Natanael Uli</i>	
QUANTITATIVE SEISMIC STRATIGRAPHY OF THE GREAT SOUTH BASIN, NEW ZEALAND: PREDICTING SHALLOW AND DEEP MARINE RESERVOIRS FROM SHELF- MARGIN ARCHITECTURE .....	254
<i>T. Nguyen, J. Bourget, V. Paumard</i>	
APPLYING THIN BED ANALYSIS ON BIOTURBATED HETEROLITHIC FACIES .....	259
<i>J. Margotta, G. Monseguí, Z. Harith</i>	
APPLICATION OF FORWARD STRATIGRAPHIC MODELLING TO MODEL FACIES DISTRIBUTION AND STACKING PATTERN OF A MIOCENE CARBONATE RESERVOIR IN THE CENTRAL LUCONIA, OFFSHORE SARAWAK, MALAYSIA .....	266
<i>G. Primadani, H. Mohammad, Z. Mohamad, J. Margotta, Z. Harith, F. Kadir</i>	
MAXIMIZING VALUE OF VINTAGE SEISMIC SURVEY WITH ADVANCED PROCESSING .....	271
<i>C. Jiao, Y. Xiao, L.A. Nguyen, V.V. Khuong, T.Q. Bui</i>	
ESTIMATION OF ULTIMATE RECOVERY FOR A SHALLOW FRACTURED IGNEOUS ROCK RESERVOIR IN THE WICHIAN BURI SUB-BASIN, THAILAND .....	277
<i>C. Chaiyasart, P.H. Giao</i>	

HYDRAULIC FLOW UNIT METHOD FOR CARBONATE RESERVOIR ROCK TYPE CLUSTERING OF KAIS FORMATION, SALAWATI BASIN, WEST PAPUA .....	283
<i>B. Rajasanegara</i>	
ENHANCING IMAGING USING LEAST SQUARES Q PRE-STACK DEPTH MIGRATION .....	288
<i>H.L. Do, C.C. Lam, M.L. Ghazali, S. Maitra, A. Bisset, S.L. Alfred, M. Masato</i>	
END-OLIGOCENE INVERSION STRUCTURES IN THE NORTH SONG HONG BASIN AND PROPOSED TECTONIC MODEL .....	293
<i>H. Bui, M. Fyhn, T. Nguyen, C. Tong, C. Trinh, K.A. Nguyen, H. Nguyen</i>	
TRENDS IN AVO .....	298
<i>J. De Bruin</i>	
SEISMIC RESERVOIR CHARACTERISATION ON HIGH QUALITY BROADBAND DATA OF A WESTERN OFFSHORE FIELD, INDIA .....	303
<i>S. Kumar, R. Porjesz, R. Rathore, K.H. Teng, J. Li, B. Kumar, Y.J. Lin, S. Basu, R. Srivastava, B.M. Patel</i>	
DEPOSITIONAL FACIES PREDICTION USING ARTIFICIAL INTELLIGENCE TO IMPROVE RESERVOIR CHARACTERIZATION IN A MATURE FIELD IN THE NAM CON SON BASIN .....	309
<i>Ngo Huu Hai, Tran Vu Tung, Tran Ngoc The Hung, Joseph Lambiase, Nguyen Huyen Anh</i>	
QUANTIFYING INCREMENTAL VALUE IN MATURE FIELDS USING UNCONVENTIONAL HIGH RESOLUTION MODELLING WORKFLOWS, SUPPORTED BY FIELD ANALOGUES FROM MYANMAR .....	313
<i>M. Bentley</i>	

**Author Index**