3IWRP Download Package

This package contains the following data:

1. This document outlining the Conference Technical Program
2. The abstracts to conference presentations in PDF format
3. The abstracts to conference posters in PDF format

Technical Program for Day 1, Monday 13th April 2015

07:30–08:15 Morning Coffee and Registration

08:15–08:30 Opening and Welcome

EFFECTIVE MEDIUM, CRACKS

08:30-08:50 Building a Model of Coupled Elastic and Flow Properties of Porous Rock, Arthur Cheng and Steve Brown, National University of Singapore. (96)

08:50-09:10 Permeability and Tortuosity Anisotropy of a Fractured Porous Rock, Fourier Dzar Eljabbar Latief, Umar Fauzi, Physics of Earth and Complex Systems, Faculty of Mathematics and Natural Sciences, Institut Teknologi Bandung. (67)

09:10-09:30 The elastic moduli of composite material containing two-phase matrix and double inclusion concentrations, Weitao Suna, Zhifang Yang, Minghui Lu, Tsinghua University. (18)

09:30-09:50 Classification of sandstone by shale distribution and the effects on saturated elastic moduli, Kanne Morten, Technical University of Denmark. (40)

09:50–10:10 Poster Introductions

10:10–10:40 Morning Tea

FLUID DISTRIBUTION EFFECTS, 4D, CORE FLOODING

10:40-11:00 Water saturation effects on shear wave splitting in synthetic rock with fractures aligned at oblique angles., Kelvin Amalokwu, Angus I. Best, Mark Chapman, Giorgos Papageorgiou, University of Southampton. (22)

11:00-11:20 Calibrating parameters of rock physics models to estimate gas hydrate saturation in host sediments., Gaowei Hu, Yuguang Ye, Changling Liu, Angus Best, Jian Zhang, Shaobo Diao, Qingdao Institute of Marine Geology. (13)

11:20-11:40 Heterogeneous two-phase flow in homogeneous porous sandstone, Keigo Kitamura, Osamu Nishizawa, Takuma Ito and Robert J. Finley, WPI-I2CNER, Kyushu University. (48)

11:40–12:10 Discussion

12:10–12:30 Poster Introductions

12:30–13:30 Lunch

FLUID SUBSTITUTION

13:30-13:50 N2/CO2 Substitution in Methane-Hydrate Bearing Sediments, Mandy Schindler, Timothy Kneafsey, Seiji Nakagawa, Colorado School of Mines. (83)

13:50-14:10 Multi-fluid substitution, capillarity and inclusion models, Giorgos Papageorgiou, University of Edinburgh. (39)

14:10-14:30 Ottawa sand-Revisited: Aspect of fluid substitution, Mohammad Hossain Bhuiyan, Rune Martin Holt, NTNU, SINTEF, Norway. (80)

14:30-14:50 Ultrasonics measurements of saturated fluids, Arif Rabbani and Douglas R. Schmitt, University of Alberta. (70)

14:50–15:10 Afternoon Tea

FLUIDS

15:10-15:30 Seismic properties of hydrocarbon fluids, De-hua Han and Michael Batzle, University of Houston and Colorado School of Mines. (107)

15:30-15:50 CO2 flooding experiment of reservoir sandstones-monitoring changes in acoustic and electric properties, M. Soldal, L. O. Omolo and T. Tran, Ø. Johnsen, N. H. Mondol, G. Sauvin, I. Viken, L. Grande and J. Park, Norwegian Geotechnical Institute. (63)

15:50-16:10 Geophysical and Hydro-Mechanical Coupled Monitoring for Efficient Control of CO2 Storage, Ismael Falcon-Suarez, Laurence J. North and Angus I. Best., NOC Southampton. (66)

16:10-16:30 Flue Gas, N2 and CO2 - brine contact angles on quartz at realistic reservoir conditions, Ahmed Z. Al-Yaseria, Mohammad Sarmadivaleh, Ali Saeedi, Maxim Lebedev, Ahmed Barifcani, and Stefan Iglauer, Curtin University. (49)

16:30–17:00 Discussion

17:15 Ice Breaker (Marine Lounge Bar)

Technical Program for Day 2, Tuesday 14th April 2015

08:00–08:30 Morning Coffee

ANISOTROPY

08:30-08:50 3D velocity distribution of P- and S-Waves in rocks: Comparison of high-pressure study and texture-based calculated data, T. Lokajicek, T. Svitek, T. Ivankina and H. Kern, Academy of Sciences, Czech Republic. (81)

08:50-09:10 Assessment of a new method for estimating Thomsen's d parameter in the laboratory, Joel Sarout, Claudio Delle Piane, Dariush Nadri, Lionel Esteban and Dave Dewhurst, CSIRO Energy. (88)

09:10-09:30 Seismic anisotropy and elastic properties of a VTI medium , Oliver Ong; Douglas R. Schmitt; Randolph Kofman , Experimental Geophysics Group - University of Alberta. (43)

09:30-09:50 Joint Impedance and Facies AVO Inversion driven by Rock Physics, Michael Kemper and James Gunning, Ikon Science Limited. (7)

09:50–10:10 Poster Introductions

10:10–10:40 Morning Tea

POROELASTICITY

10:40-11:00 On the Relevance of Effective Stress Coefficients in Time-Lapse Seismic, Luca Duranti, Chevron Energy Technology Company. (92)

11:00-11:20 Reservoir poroelastic properties from pore pressure oscillation method, A. Hasanov and M. Batzle, Colorado School of Mines. (84)

11:20-11:40 Biot bulk coefficient and the micro-inhomogeneity parameter, Tobias Mueller and Pratap Sahay, CSIRO. (82)

11:40–12:10 Discussion

12:10–12:30 Poster Introductions

12:30–13:30 Lunch

SHALES AND CLAYS 1

13:30-13:50 Evaluation of Rock Properties from Logs Affected by Deep Invasion - A Case Study, Jahan Zeb (CGG Australia), Reece Murrell (Esso Australia), CGG Australia. (31)

13:50-14:10 A laboratory study of the elastic and anelastic properties of the Eagle Ford shale , Vassily Mikhaltsevitch, Maxim Lebedev, and Boris Gurevich, Curtin University. (101)

14:10-14:30 Experimental compaction of dry smectite-silt mixtures, Nazmul Haque Mondol, University of Oslo & Norwegian Geotechnical Institute (NGI). (17)

14:30-14:50 Seismic dispersion in Mancos Shale, Andreas Bauer, Dawid Szewczyk, Jens Hedegaard, Rune M. Holt, Norwegian University of Science and Technology. (74)

14:50–15:10 Afternoon Tea

SHALES AND CLAYS 2

15:10-15:30 Linking Static, Seismic and Ultrasonic Shale Anisotropy, Rune M Holt, Andreas Bauer, Dawid Szewczyk, Jørn F Stenebråten, Erling Fjær, and Audun Bakk, NTNU and SINTEF. (68)

15:30-15:50 Elasticity and plasticity of Palaeogene clay from Fehmarn Belt area, Ahmed Awadalkarim, Niels Nielsen Foged, Ida Lykke Fabricius,, Technical University of Denmark, Department of Civil Engineering. (71)

15:50-16:10 Sonic Velocities in Shale in a Deviated Well , Marina Pervukhina, Pavel Golodoniuc and David N. Dewhurst, CSIRO. (23)

16:10-16:30 Rock physics model for the Eagle Ford Shale, Colin M. Sayers, Schlumberger. (97)

16:30–17:00 Discussion

Technical Program for Day 3, Wednesday 15th April 2015

Rottnest Island Day Trip (with optional bicycle, helmet and lock hire)

A leisure networking trip to Rottnest Island was booked for the Workshop participants.

Rottnest Island is located just off the coast of Western Australia. It has many beautiful beaches and roads, which are closed to private cars and are ideal for bicycle rides around the Island.



Technical Program for Day 4, Thursday 16th April 2015

08:00–08:30 Morning Coffee

FREQUENCY-DEPENDANT ROCK PROPERTIES

08:30-08:50 A new experimental set-up for measuring the frequency dependence of Young modulus and Poisson ratio, Lucas Pimienta, Jérôme Fortin and Yves Guéguen , Laboratoire de Géologie _ ENS. (79)

08:50-09:10 Relating static stiffness to ultrasonic, sonic and seismic velocities, Erling Fjær, Rune M. Holt and Anna M. Stroisz, SINTEF Petroleum Research. (76)

09:10-09:30 Joint Measurements of Static and Dynamic Young's Moduli: The Methods and Preliminary Results, Hong Cao,Zhifang Yang,De-hua Han,Xinfei Yan and Minghui Lu, RIPED,PetroChina. (21)

09:30-09:50 Multi-band Direct Laboratory Measurement-based Dispersion analysis on reservoir rocks, Jian-guo Zhao, Shang-xu Wang , Han-jun Yin, Xiao-yi Ma, Xiuyi Yan, and Zhe Li, China University of Petroleum, Beijing. (6)

09:50-10:10 Assessing rock brittleness and fracability from radial variation of elastic wave velocities from borehole acoustic logging, Tang, Xiaoming, Xu, Song, Zhuang, Chunxi, Su, Yuanda, and Chen, Xuelian, University of Houston. (108)

10:10–10:40 Morning Tea

CARBONATES 1

10:40-11:00 Poromechanical properties of carbonate rocks: approach to chemical alteration impact, E. Bemer, M.T. Nguyen, J. Dautriat, M. Adelinet, M. Fleury and S. Youssef, IFP Energies nouvelles. (69)

11:00-11:20 Laboratory Study of the Seismic Properties on Bitumen Saturated Carbonates from Grosmont Formation, Alberta, Xiwei Chen, Arif Rabbani, Doug Schmitt, Randolf Kofman , University of Alberta. (87)

11:20-11:40 Monitoring how carbonate cement dissolution affects rock frame properties due to CO2 injection, Ludmila Adam, Jackson MacFarlane, Kasper van Wijk, Jeffrey Shragge and Karen Higgs, University of Auckland. (27)

11:40-12:00 Petrophysical Characterization of Fontainebleau Sandstone by Nuclear Magnetic Resonance, Kurt Livo, Andre Revil, Milad Saidian, and Manika Prasad, Colorado School of Mines. (93)

12:00–12:30 Discussion

12:30–13:30 Lunch

CARBONATES 2

13:30-13:50 Water Weakening Effects: Elasticity of Reservoir Chalk with Partial Fluid Saturation, Gram, Tobias Benjamin; Fabricius, Ida Lykke., Technical University of Denmark, Department of Civil Engineering, Kgs. Lyngby. (78)

13:50-14:10 Experimental investigation on the mechanical weakening of a poorly consolidated sandstone induced by fluid injection., Jeremie Dautriat, Christian David, Joel Sarout, Claudio Delle Piane, Romaric Macault and Delphine Bertauld, CSIRO. (32)

14:10-14:30 Effect of dissolution on acoustic properties in carbonate rocks, Yan Xinfei, Lu Minghui, Yang Zhifang and Yu Hao, Research Institute of Petroleum Exploration and Development, PetroChina. (28)

14:30-14:50 Ultrasonic Attenuation of Pure THF-Hydrate, Mathias Pohl, Michael L. Batzle, Colorado School of Mines. (15)

14:50-15:10 Discussion

15:10–15:30 Afternoon Tea

15:30-17:00

LAB TOUR

Conference Dinner

Technical Program for Day 5, FRIDAY 17th April 2015

08:00–08:30 Morning Coffee

ATTENUATION

08:30-08:50 Application of conventional and new methods for estimation of seismic wave attenuation in carbonate rocks using VSP data in Abu-Dhabi oil fields., Fateh Bouchaala; Jun Matsushima; Mohammed.Y Ali, The Petroleum Institute, United Arab Emirates. (52)

08:50-09:10 Separating intrinsic from scattering seismic wave attenuation from sonic logs in a geothermal field, Evert Duran, Kasper van Wijk, Ludmila Adam, Irene Wallis, University of Auckland. (45)

09:10-09:30 The impact of wave-induced fluid flow on the seismic reflection in heterogeneous porous media, Luanxiao Zhaoa, De-hua Han, Qiuliang Yao, Rui Zhou, and Fuyong Yan, Tongji University and University of Houston. (99)

09:30-09:50 A simple recipe for solid substitution in porous rocks, Boris Gurevich and Nishank Saxena, Curtin University and CSIRO Energy. (89)

09:50-10:10 Laboratory evidence for Krauklis wave resonance in fractures, Pei-Ju Rita Shih, Marcel Frehner, ETH Zurich. (65)

10:10–10:40 Morning Tea

DIGITAL ROCK PHYSICS AND NUMERICAL UPSCALING

10:40-11:00 Towards integrating conventional and digital rock physics, S. Alizadeh, N. Francois, S. Latham, T. Senden, J. Middleton, A. Limaye, and C.H. Arns————————————, UNSW Australia. (91)

11:00-11:20 Numerical analysis of high resolution X-ray CT images of Bentheim Sandstone under confining pressure, Erik H. Saenger, Maxim Lebedev, David Uribe, Maria Osorno, Stefan Inglauer and Holger Steeb. , International Geothermal Centre Bochum (GZB). (42)

11:20-11:40 Numerical upscaling of seismic characteristics of strongly heterogeneous poroelastic media: Randomly distributed parallel fractures, Eva Caspari, Marco Milani, J. Germán Rubino, Tobias M. Müller, Beatriz Quintal and Klaus Holligera , University of Lausanne and CSIRO. (90)

11:40-12:10 Attenuation characteristics of seismic waves in fractured rock domains, Carlo Vinci, Nele Pollmann, Joerg Renner, and Holger Steeb, Ruhr-University Bochum. (53)

12:10–12:30 Discussion

12:30–13:30	Lunch
3:30-13:50	Discussion
13:50–14:30	Student Awards
14:30-14:50	**VOTE 4IWRP**

ABSTRACTS TO POSTERS

A Comparison of Measurement Techniques for Porosity and Pore Size Distribution in Mudrocks: A Case Study of Haynesville, Niobrara, Monterey and Eastern European Silurian Formations, Milad Saidian, Utpalendu Kuila, Saul Rivera, Lemuel J. Godinez, Manika Prasad, Leo Alcantar-Lopez, Colorado School of Mines. (104)

A low cost pressure cell for micro computer tomography , Maxim Lebedev, Curtin University, Exploration Geophysics. (38)

Acoustic response and CT imaging of rocks flooded with reactive fluids, Stephanie Vialle, Curtin University. (29)

An experimental study on the effects of water-weakening in porous carbonate rocks, Claudio Delle Piane, Ben Clennell, Jeremie Dautriat and Graham Price, CSIRO Energy Flagship. (33)

Broadband laboratory measurements of seismic properties in cracked and fluid-saturated glass, Yang Li, Emmanuel C. David, Seiji Nakagawa, Ian Jackson and Douglas Schmitt , Australian National University. (100)

Changes in elastic properties of artificial shales due to compaction., Roman Beloborodov, Marina Pervukhina, Lionel Esteban, Maxim Lebedev , CSIRO. (58)

Determining effective geometry for electrical modelling of reservoir rocks, Tongcheng Han, Michael Ben Clennell, Matthew Josh and Marina Pervukhin, CSIRO. (14)

Dynamic to static relationships of shear modulus for sand and sandstones , Lars Grande, Magnus Soldal, Nazmul Haque Mondol, Norwegian Geotechnical Institute NGI. (62)

Effect of CO2 on bulk and shear moduli of rocks: Frio crosswell case study , Mohammed Al Hosni, Boris Gurevich, and Thomas M. Daley , Curtin University. (60)

Effective stress coefficient for porosity and bulk modulus: theory versus simulations and experimental data, Stnaislav Glubokovskikh, Boris Gurevich, Curtin University. (95)

Electrical tortuosity, Kozeny's factor and cementation factor modelled for chalk , Konstantina Katika and Ida L. Fabricius, Technical University of Denmark. (56)

Estimation of grain elasticity properties from ultrasonic measurements on dry granular pack, Mahyar Madadi, Andrej Bona, Maxim Lebedev and Boris Gurevich, Curtin University, Department of Exploration Geophysics. (50)

Frequency dependence of a fluid-saturated limestone's bulk modulus., Jan Borgomano, Lucas Pimienta, Jérôme Fortin and Yves Guéguen, Laboratoire de Géologie de l'Ecole Normale Supérieure. (75)

Frequency dependency of stress-induced anisotropy in fluid-saturated rocks, Olivia Collet, Boris Gurevich, Curtin University. (24)

Interpretation of strong seismic attenuation in quartz sand in the kilohertz range, Bordes Clarisse, Müller Tobias, Qi Qiaomu , Madadi Mahyar, Gurevich Boris, Holzhauer Julia and Brito Daniel, UPPA (France) & Curtin University. (47)

Inversion of crack density and aspect ratio from laboratory ultrasonic velocity data using a cracked porous medium elastic wave theory, Chen Xuelian, Tang Xiaoming, Qian Yuping and Li Nuo, China University of Petroleum. (16)

Micro indentation testing of granite, Yevhen Kovalyshen, CSIRO. (12)

Microtextural, seismic rock physical properties and modelling of Longmaxi Formation shale, Deng jixin, Tang genyang, Yan ping, State Key laboratory of Oil and Gas Reservoir Geology and Exploitation, Chengdu University of Technology. (98)

Monitoring of Hydraulic Fractures using Blue Shift Indicator, Junxian He, Yuan Xu, Arcady Dyskin, Elena Pasternak , University of Western Australia. (103)

Multiple-porosity variable critical porosity model, Jiajia Zhang, Guangzhi Zhang, China University of Petroleum. (37)

Permeability estimation and scaling from SEM and thin section images , Sandra Vega, The Petroleum Institute. (77)

P-wave velocity in partially saturated rock: Fluid patch size changes in imbibition experiments, Jiawei LIU, Weitao SUN, Tobias M.Muller, Qiaomu QI and Maxim Lebedev , Zhou Pei-Yuan Center for Applied Mathematics. (25)

Rockmass mechanics parameter prediction and application in tight sandstone reservoirs, Daxing Wang,Yonggang Wang,Lihui Liu, Exploration and Development Research Institute of PetroChina Changqing Oilfield Company. (30)

Seismic Velocity Prediction Based on Petrophysical model and Application in Tight Gas Reservoir of the Xihu Depression, East China Sea Shelf Basin, Deyong Li, Xiaodian Jiang, Bingjie Dong, Yang Sun and Qi Lin, Ocean university of China. (35)

Seismic wave attenuation in Lower Cretaceous carbonate rocks: A laboratory ultrasonic study, Liqin Sang, The Petroleum Institute, Texas A&M University. (51)

Shale elastic property relationships as a function of total organic carbon content using synthetic samples, Y. Altowairqi1, R. Rezaee1, B. Evans1 and M. Urosevic2, CURTIN. (73)

Stochastic time lapse seismic inversion for CO2 sequestration synthetic data, Mateus Goes Castro Meira, Boris Gurevich, James Gunning and Roman Pevzner, Petrobras. (8)

S-wave velocity prediction by using critical porosity model and Gassmann equations, Jiajia Zhang, Guangzhi Zhang, China University of Petroleum. (36)

Tectonic implications of the temperature-time path of the rocks in the central segment of the Red River shear zone, Wei Gong, Xiaodian Jiang, Ocean University of China. (34)

The influence of brine on platelet contacts in a smectite rich clay frame, Morten Kanne Soerensen and Ida Lykke Fabricius, Technical University of Denmark. (41)

The influence of fluid distribution on seismic amplitude variation, Qiaomu Qi; Tobias M. Mueller; Boris Gurevich, Curtin University. (61)

The Velocity - Density Relationship Revisited, Bernd Milkereit and Maria Wu, University of Toronto. (10)

Thermal Maturity and Elastic Properties of Kerogen-rich Rocks, Saeed Zargari, Manika Prasad, Colorado School of Mines. (94)

Three-dimensional digital rock image of fractured rock, Guoliang Yan, Jianhu Gao and Zhonghua Xu., PetroChina Research Institute of Petroleum Exploration & Development -- NorthWest. (20)