# TABLE OF CONTENTS

**Volume 1**

**Vibroseis Productivity: Shake and Go**
Christine E. Krohn, Marvin L. Johnson, Mike W. Norris, Rachel Ho .......................... 1

**Quantification of Signal Fidelity from OBC Production Data**
Michael Norris, Marvin Johnson .......................................................... 6

**Characterization of Ground Roll from a Densely Sampled 3C/3D Wavespread**
Marvin Johnson, Mike Norris, Mat Walsh ............................................... 11

**Solid-streamer Noise-reduction Principles**
Robert Dowle, Mike Maples ................................................................. 16

**Overview of Simultaneous Vibroseis Acquisition Methods**
Claudio Bagaini .................................................................................. 21

**Enhancing the Low-frequency Content of Vibroseis Data**
Claudio Bagaini .................................................................................. 26

**Over/under Towed-streamer Acquisition: A Method to Extend the Seismic Bandwidth to Both Higher and Lower Frequencies**
Nick Moldoveanu, Mark Egan, William Abriel, Gary Hampson .......... 31

**A Case Study of Vibroseis High-efficiency Flip-flop Sweep Technique**
Zhou Ruyi, Zhang Mugang, Deng Shuquan, Hong Yueying .......................... 37

**Single-sensor 3D Land-seismic-acquisition in Kuwait**
Ghassan Rached, Abdulaziz Al-Fares .................................................. 42

**Geological Target-oriented 3D Geometry Design**
Yin Wuhai, An Peijun, Zhen Wensheng, Wei Guoxian .......................... 46

**Application of High-density Acquisition in Jungar Basin, Western China**
Peng Xiao, Qin Xin, Yang Wanxiang .................................................... 51

**Method to Preserve Wavelet Consistency in High-precision Seismic Exploration**
Gao Guocheng, Shi Haifeng, Wang Naijian, Liu Yangui ...................... 56

**Application of Splitting Vibroseis Sweeps to Different VPs in 3D Seismic Exploration**
Huang Xianguo, An Shujie, Wang Xinquan, Sun Meng .......................... 61

**3D Geometry Optimization with Three Uniformities**
Duan Mengchuan, Ma Weining, Chen Xueqiang, Yan Feng ................. 66

**Estimation of Positioning Repeatability Noise in 4D Streamer Acquisition**
Jean-Marc Mougenot, Daniel Vaxelaire, Pierre Spindler ....................... 71

**The Use of 3D Visualization for Onboard Acquisition and Processing QC**
Chris Taylor, Jostein Lima, Oyvind Syljuasen, Stian Hegna .................. 76

**A Case of SI Attenuation in 4D Seismic Data Recorded with a Permanently Installed Array**
Jan H. Kommedal, Per Helge Semb, Ted Manning ............................... 81
A Procedure to Analyze Optimum Orientation to Record Seismic Surveys
L. B. Comeaux, Steve Campbell, Aloke Mathur, Doug Rodenberger

3D Airgun Source Characterization and Propagation Modeling
Arslan M. Tashmukhambetov, George E. Ioup, Juliette W. Loup, Natalia A. Sidorovskaia, Joal J. Newcomb, Christopher D. Walker, Ben Brock, Grayson H. Rayborn

Rapid Acquisition of Small 3D Seismic Surveys: Urban Areas Within the Fort Worth Basin
Thomas D. Bowman, Mark Russell, Wayne Woodside, Steve Culpepper

Streamer Positioning and Spread Stabilization for 4D Seismic
James A. Musser, Mike Burnham

Enhanced Imaging with Seafloor Seismic Compared to Towed Streamer
Chris Walker, Jim Musser, Pete Stewart

Effective Elasticity of Rocks with Irregularly Shaped and Intersecting Cracks
Vladimir Grechka, Ivan Vasconcelos, Mark Kachanov

A Comparison of Intrinsic and Effective Eta Estimation in Time-velocity Analysis
Joel Starr

Kinematic and Dynamic Anisotropy: Implication of Seismic Fracture Characterizations
Enru Liu, Mark Chapman, Xiangyang Li, John H. Queen, Heloise Lynn

Seismic Critical-angle Reflectometry: A Method to Characterize Azimuthal Anisotropy?
Martin Landro, Ilya Tsvankin

Layer-induced Seismic Anisotropy from Full-wave Sonic Logs
Christopher L. Liner

Fracture Detection Using 3D P-wave Seismic Data: An Integrated Study from Southwest China
Zhongping Qian, Xiang-Yang Li, Shangxu Wang, Shoudong Wang

Evaluation of Shear Anisotropy from Sonic and Borehole Seismic Measurements in the Cuiltahuac Field, Mexico
C. Barrientos, E. Wielemaker, T. Piona, J. B. U. Haldorsen, P. Saldungaray, J. L. Arroyo

Azimuthal Anisotropy in Marine Surveys: Impact and Remedy
Hubert van der Heijden, Guido Baeten, Martijn van Haaster

Efficient and Accurate Traveltime Computation in 3D TTI Media by the Fast Marching Method
Min Lou

Reconstruction of the Layer Anisotropic Elastic Parameters Using Kinematic and Dynamic Information Derived from Wide-azimuth Data
Ran Bachrach, Mita Sengupta, Antoun Salama, Paul Miller

Effective Attenuation Anisotropy of Layered Media
Yaping Zhu, Ilya Tsvankin, Ivan Vasconcelos

AVOA Algorithm for Fracture Characterization
Tatiana Chichinina, Vladimir Sabinin, Gerardo Ronquillo-Jarillo

Selection of Reference-anisotropy Parameters for Wavefield Extrapolation by Lloyd’s Algorithm
Yaxun Tang, Robert G. Clapp
Orthogonal Parameters for Anisotropic Velocity Analysis ................................................................. 175
Paul J. Fowler, Alexander Jackson, Bruce Hootman

Evaluations of Prestack Anisotropic Kirchhoff, Phase-shift-plus-interpolation,
and Reverse-time Depth Migration Methods for Dipping TI Media ...................................................... 180
Xiang Du, John C. Bancroft, Don C. Lawton, Larry R. Lines

Investigating the Anisotropy and Heterogeneity in 2D VTI Model with P-wave Data
Recorded at the Surface: Numerical Experiments .............................................................................. 185
K. V. Bykov, Y. V. Kiselev, V. N. Troyan, B. M. Kashtan

P-wave Seismic Anisotropy in a Fractured Carbonate Reservoir: A Case Study
from East Texas .......................................................................................................................................... 190
Mary K. Johns, David Y. Wang, Sam Z. Sun, Chih-Ping Lu, Shiyou Xu, Ken Susewind, Da Zhou

Estimation of Anisotropy Parameters in Orthorhombic Media .......................................................... 194
Pavan Elapavuluri, John C. Bancroft

P-wave Azimuthal Velocity Inversion for Fracture Detection in an East Texas Gas
Field .......................................................................................................................................................... 199
Zandong Sun, Mary K. Johns, Da Zhou

Residual Moveout in Anisotropic Angle-domain Common-image Gathers with
Dipping Reflectors .................................................................................................................................. 204
Pierre Jousselin, Biondo Biondi

Laboratory Determination of Elastic Anisotropy in Shales from Alberta ................................................... 209
Darrel Hemsing, Douglas R. Schmitt

Head Waves As Mechanism for Azimuthal PP AVO Magnitude Anomalies ........................................... 214
Julius Doruelo, Fred Hilterman, Gennady Goloshubin

Frequency-depending AVO for a Gas-saturated Periodical Thin-layered Stack ........................................ 219
Naum Marmalyevskyy, Yury Roganov, Alex Kostyukevych, Zina Gazarian

The Art of Seismic Inversion - An Example from Erg Chouiref, Algeria .................................................. 224
Athmane Rahmani, Ahmed Belmokhtar, Andrea Murineddu, Jalal Khazanehdari, John English, Halim Roumane, Bob Godfrey

Applications of Spectral Decomposition for AVO Analyses in the West of
Shetland .................................................................................................................................................... 229
Enru Liu, Mark Chapman, Nick Loizou, Xiangyang Li

AVO Equation Without Velocity and Density ....................................................................................... 234
Haitao Ren, Fred Hilterman, Zhengyun Zhou, Mike Dunn

Stringent Assumptions Necessary for Pore-fluid Estimation ................................................................. 239
Zhengyun Zhou, Fred Hilterman, Haitao Ren

Phase-independent Product Indicators for AVO Reconnaissance ......................................................... 244
Herbert W. Swan

A Fluid Detection Study from Zoeppritz Elastic Impedance ................................................................. 249
Jinfeng Ma, Igor B. Morozov

AVAZ Parameter Uncertainty Estimation ................................................................................................. 254
Jon Downton, David Gray

Synthetic Study of Azimuthal AVO Analysis with Anisotropic Spreading
Correction .................................................................................................................................................. 259
Xiaoxia Xu, Ilya Tsvankin

AVO Background Trend Analysis ............................................................................................................ 264
Alfa Kisuka, Maurice Gidlow
Development of an Optical Microhydrophone for Mass Production ................................................................. 359
Hiroshi Asanuma, Mitsuyuki Tanaka, Hiroaki Niitsuma, Ryotaku Sato

Tube Waves from a Horizontal Fluid-filled Fracture of a Finite Radius .......................................................... 364
Sergey Ziatdinov, Andrey Bakulin, Boris Kashtan

Pressure Estimation by Using Amplitude of SWD Drill Bit Data ................................................................. 369
Flavio Poletto, Giorgia Pinna, Francesco Miranda

Borehole Acoustic Reflection Survey for High-resolution Imaging .................................................................... 374
Jakob Haldorsen, Arne Voskamp, Rune Thorsen, Badarinadh Vissapragada, Stephen Williams, Morten Fejerskov

Simulation of the Seismoelectric Signal During Multipole Logging While Drilling (LWD) ............................. 379
Xin Zhan, Shihong Chi, M. Nafi Toksflz

Numerical Modeling by Finite Difference of the Coupled Seismoelectric Wave Propagation in Porous Saturated Media .................................................................................................................. 384
Francisco J. A. Vanzeler, Viatcheslav Priimenko

Sonic Logging in Deviated Borehole of an Anisotropic Formation: Laboratory Study .................................. 388
Zhenya Zhu, Shihong Chi, M. Nafi Toksflz

Large Well-spacing Crosswell Seismic Imaging for Deep-gas-reservoir Mapping and Description ............ 393
Guo Wankui, Pang Yanming, Kong Fanzhong, Gang Yu, Brad Bryans, Bruce Marion

Numerical Simulation and Field Examples of Critically Refracted Shear Arrivals in a Borehole in Soft Formations .............................................................................................................................................. 398
Kexie Wang

3D Simulation of LWD Directional Resistivity Tool Response Using FDFD Potential Formulations .................. 403
Junsheng Hou, Michael S. Bittar, Guoyu Hu

Processing Acoustic Logging Data to Image Near-borehole Geological Structures .................................. 408
X. M. Tang, Y. Zheng, D. Patterson, Baker Hughes

Borehole Deviation Surveys Are Necessary for Hydraulic Fracture Monitoring ........................................... 413
Leo Eisner, Petr Bulant, Joel H. Le Calvez

Radial Profilings Integration for Optimal Well-completion Design ............................................................. 418
H. P. Valero, B. Sinha, B. Vissapragada

Elastic Wave Propagation in Deviated Wells in Anisotropic Formations ....................................................... 423
Bikash K. Sinha, Ergun Simsek, Qing-Huo Liu

Crosswell Seismic Amplitude-versus-angle Studies at a Niagaran Reef ....................................................... 428
Sean Trisch, Wayne D. Pennington, Roger M. Turpening

Single-well Imaging of a Salt Flank Using Walkaway VSP Data .................................................................. 433
Brian E. Hornby, Jianhua Yu

Response Study of a Tilted-magnetic Dipole-propagation Mockup Tool in Various Formations ......................... 438
Dean M. Homan, Gerald Minerbo, Richard Rosthal

Analysis of Time-lapse P-wave Seismic Data from Rulison Field, Colorado ............................................... 443
Mahendra A. Kusuma, Thomas L. Davis
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applying DHI/AVO Best Practices to Successfully Identify Key Risks</td>
<td>448</td>
</tr>
<tr>
<td>Associated with a Fizz-water Direct Hydrocarbon Indicator in the</td>
<td></td>
</tr>
<tr>
<td>Norwegian Sea</td>
<td></td>
</tr>
<tr>
<td>William A. Fahmy, Joseph M. Reilly</td>
<td></td>
</tr>
<tr>
<td>Successful Application of Spectral Decomposition Technique to Map</td>
<td>452</td>
</tr>
<tr>
<td>Deep Gas Reservoirs</td>
<td></td>
</tr>
<tr>
<td>GuoWankui, Pang Yanming, Marianne Rauch-Davies, Gang Yu</td>
<td></td>
</tr>
<tr>
<td>Hybrid Gridded Tomography in the Southern North Sea</td>
<td>457</td>
</tr>
<tr>
<td>Alan G. Campbell, Emma Evans, Darren Judd, Ian F. Jones, Steve Elam</td>
<td></td>
</tr>
<tr>
<td>Exploration Hot Zones in Kalimantan and Eastern Indonesia: A Two</td>
<td>462</td>
</tr>
<tr>
<td>Decade Review</td>
<td></td>
</tr>
<tr>
<td>Anditya Ibrahim, Nugrahani Pudyo, Awang Satyana, Sunjaya Saputra</td>
<td></td>
</tr>
<tr>
<td>A Comprehensive Velocity Model Building Approach - Cusiana Cupiagua</td>
<td>467</td>
</tr>
<tr>
<td>Sur TTI PSDM</td>
<td></td>
</tr>
<tr>
<td>Uzi Egozi, Matt Yates, Jose Omana, Bruce Ver West, Nick Burke, Mario</td>
<td></td>
</tr>
<tr>
<td>Mesa, Eduardo Moreno, Jamie Checa, Monica Martinez, Hector Alfonso,</td>
<td></td>
</tr>
<tr>
<td>Jose E. Calderon</td>
<td></td>
</tr>
<tr>
<td>Spatial Distribution of Coherent Microseismic Events at Cooper Basin</td>
<td>472</td>
</tr>
<tr>
<td>Australia</td>
<td></td>
</tr>
<tr>
<td>Yusuke Kumano, Hirokazu Moriya, Hiroshi Asanuma, Hiroaki Niitsuma,</td>
<td></td>
</tr>
<tr>
<td>Doone Wyborn</td>
<td></td>
</tr>
<tr>
<td>Forties Infill Drilling: A Case History Documenting an Extensive</td>
<td>477</td>
</tr>
<tr>
<td>Infill Drilling Campaign Driven by 4D Seismic Technology</td>
<td></td>
</tr>
<tr>
<td>Steve Adiletta, David Allard, Alistair Gray, Alison Jagger, Donald</td>
<td></td>
</tr>
<tr>
<td>Keir, Ken MacAllister, Philip Rose</td>
<td></td>
</tr>
<tr>
<td>Improved Prestack Depth Images of Pompano Field, Mississippi Canyon,</td>
<td>482</td>
</tr>
<tr>
<td>Deepwater Gulf of Mexico</td>
<td></td>
</tr>
<tr>
<td>Mark Chang, Charles Contrino, Kerr-McGee, Zhiming Li, Gary Rodriguez,</td>
<td></td>
</tr>
<tr>
<td>Lin Zhang, Itze Chang, Chen-bin Su</td>
<td></td>
</tr>
<tr>
<td>Reservoir Structure at Yufutsu Gas Field, Japan, Determined by</td>
<td>486</td>
</tr>
<tr>
<td>Analysis of Induced Microseismic Multiplets</td>
<td></td>
</tr>
<tr>
<td>Yusuke Kumano, Hiroshi Asanuma, Hiroaki Niitsuma, Kazuhiko Tezuka,</td>
<td></td>
</tr>
<tr>
<td>Ryohei Kamitsuji</td>
<td></td>
</tr>
<tr>
<td>Anisotropic Velocity Model Building and Depth Imaging for Geosteering</td>
<td>491</td>
</tr>
<tr>
<td>of Extended-reach Drilling Wells</td>
<td></td>
</tr>
<tr>
<td>Frank Adler, Serge Ganarski, Philippe Lays, Adam Cherrett, Helene</td>
<td></td>
</tr>
<tr>
<td>Bideaud, Jean-Michel Guemene</td>
<td></td>
</tr>
<tr>
<td>Possible Gas Hydrates Without Distinctive BSR - A Case Study</td>
<td>496</td>
</tr>
<tr>
<td>R. Dasgupta, P. K. Singh, T. Bhattacharya, P. Jaiswal</td>
<td></td>
</tr>
<tr>
<td>Interpretation and Pitfalls of A/B Analysis Applied to Shallow Gas</td>
<td>500</td>
</tr>
<tr>
<td>Exploration in Plio/Pleistocene Foreland Basin, Southwestern Taiwan</td>
<td></td>
</tr>
<tr>
<td>Shi-Chie Fuh, Tzy-Yi Chang, Yu-Liang Yang, Shov-Chian Liang, Hsiang-</td>
<td></td>
</tr>
<tr>
<td>Chen Lin</td>
<td></td>
</tr>
<tr>
<td>Merits of Advanced Techniques in Imaging Sub-basalt Complex</td>
<td>505</td>
</tr>
<tr>
<td>Structures of the Liaohe Basin</td>
<td></td>
</tr>
<tr>
<td>Zhang Wenpo, Guo Ping</td>
<td></td>
</tr>
<tr>
<td>Residual Error Correction in Common Imaging gathers for Prestack</td>
<td>510</td>
</tr>
<tr>
<td>Migration: Sand Area Example, Qinghai Field, China</td>
<td></td>
</tr>
<tr>
<td>Weihua Fan, Shangxu Wang, Chuanwen Sun</td>
<td></td>
</tr>
<tr>
<td>High-resolution Migration from Topography: Experience with a</td>
<td>515</td>
</tr>
<tr>
<td>Mountainous Area in China</td>
<td></td>
</tr>
<tr>
<td>Yongshang Ma, Shangxu Wang, Chuanwen Sun</td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>Page</td>
</tr>
<tr>
<td>---------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>The Competitiveness Analysis of Petroleum Geophysical Companies and Their Evaluation Indicators</td>
<td>520</td>
</tr>
<tr>
<td>Lianyong Feng, Chunying Mu, Mei Sun, Sicong Wang</td>
<td></td>
</tr>
<tr>
<td>Surface-based Microseismic Monitoring of a Hydraulic Fracture Well Stimulation in the Barnett Shale</td>
<td>525</td>
</tr>
<tr>
<td>James D. Lakings, Peter M. Duncan, Chris Neale, Todd Theiner</td>
<td></td>
</tr>
<tr>
<td>A Case Study for Imaging Complex Structures in the Andean Thrust Belt of Bolivia</td>
<td>529</td>
</tr>
<tr>
<td>Leandro Nicanoff, Yolanda Perez, Oz Yilmaz, Nanxun Dai, Jie Zhang</td>
<td></td>
</tr>
<tr>
<td>Integration of 3D Seismic Attributes and Sequence Stratigraphy in Interpreting the Middle Frio Formation Fluvial Architecture. Case History: Stratton and Agua Dulce Fields, South Texas</td>
<td>534</td>
</tr>
<tr>
<td>Hamed El-Mowafy, Kurt Marfurt</td>
<td></td>
</tr>
<tr>
<td>Unconventional Approach for Mapping Subtle Faults and Stratigraphic Features: A Case Study</td>
<td>539</td>
</tr>
<tr>
<td>Mohammed Dawwas Al-Ajmi, Narhari Srinivasa Rao, Saifullah Khan Tanoli</td>
<td></td>
</tr>
<tr>
<td>Limitations in the Use of DHIs in Hydrocarbon Prediction - Case Histories of Some Dry- Or Semi-dry Wells in Clastic Rocks in the Niger Delta of Nigeria</td>
<td>544</td>
</tr>
<tr>
<td>Charles Ojo, Iyabo Sindiku</td>
<td></td>
</tr>
<tr>
<td>Single-sensor Recording - A Case Study from a Mature Field in the Partitioned Neutral Zone, Saudi Arabia and Kuwait</td>
<td>549</td>
</tr>
<tr>
<td>Mohammad Rajab, Ibrahim Al-Hakim, John Garrity, Phil Gallaway, Andy Smart, Ayman Shabrawi, Halis Bayri, Peter van Baaren, Ruth Westcott, Tim Perrin</td>
<td></td>
</tr>
<tr>
<td>Advancing Toward the Correct Seismic Image in a Fold Belt Area with Rough Topography: A Case History of the Himalayan Foothills</td>
<td>553</td>
</tr>
<tr>
<td>A. K. Srivastav, G. Sarvesam</td>
<td></td>
</tr>
<tr>
<td>Seismic Interferometry on Background-noise Field Data</td>
<td>558</td>
</tr>
<tr>
<td>Deyan Draganov, Kees Wapenaar, Wim Mulder Johannes Singer</td>
<td></td>
</tr>
<tr>
<td>Deep Imaging of Mesozoic Section and Crustal Features of the North Central Gulf of Mexico</td>
<td>563</td>
</tr>
<tr>
<td>Theodore Stieglitz, Richard Fillon</td>
<td></td>
</tr>
<tr>
<td>AVO Inversion to Successful Drilling: Oyen 3D Case Study</td>
<td>568</td>
</tr>
<tr>
<td>Ying Zou, Jon Downton, Zhong Cai, Sam Davaraj</td>
<td></td>
</tr>
<tr>
<td>Application of Advanced Imaging Technologies to Carbonate Reservoirs in Southern China</td>
<td>573</td>
</tr>
<tr>
<td>Xuan Zhu, Zhenwu Yin, Xusheng Guo, Yongsheng Ma, Xianhuai Zhu, Allen Bertagne, John Castagna</td>
<td></td>
</tr>
<tr>
<td>Calibrating Prestack Depth Migration Volumes with Well Control</td>
<td>578</td>
</tr>
<tr>
<td>Scott MacKay, Hector Ramirez Jimenez, Jorge San Martin Romero, Mark Morford</td>
<td></td>
</tr>
<tr>
<td>3D Seismic Interpretation of Turbidite Sands from the Gulf of Mexico</td>
<td>583</td>
</tr>
<tr>
<td>Omar Akbar, A. K. M. Sarwar</td>
<td></td>
</tr>
<tr>
<td>Case Studies on Stratigraphic Interpretation and Sand Mapping Using Volume-based Waveform Decomposition</td>
<td>587</td>
</tr>
<tr>
<td>Ping An</td>
<td></td>
</tr>
</tbody>
</table>
# Volume 2

## Seismic Data Processing Technology from Desert Surface

*Gu Yanbin, Dai Xiaoyun*

## High Central Zagros (Iran), Part 1: Advanced Geophysical Integration

*Christian H. Henke, Juergen Schober, Ulrich Weber, Farnoush Gholami, Hashem Tabataba*  

## High Central Zagros (Iran), Part 2: New Geological Insights and Play Potential

*Andreas Bosold, Jürgen Schober, Werner Schwarzhans, Ali Julapour, Ali Reza Ashrafzadeh, Mohammadhossein Ehsani*

## Old Data and New Insights - Aeromagnetic Signatures of Carbonatite Complexes of Northeast India

*H. V. Ram Babu*

## The Main Evolutions of Geosciences Training

*Philippe Julien, Jacques Estival, Jean-François Coste*

## Application of Geophysical Methods to Explore the Underground Palace of the Emperor Qin Shi Huang Mausoleum

*Liu Shiyi, Lv Guoyin, Yuan Bingqiang, Duan Qingbo, Hu Ping*

## Anisotropic Prestack Time Migration and Prestack Depth Migration for Reservoir Evaluation in Offshore West Africa

*Lorette Anquelle, Jean Arnaud, Magali Beele, Pierre Esquier, Yves Le Stunff*

## Mitigation of the Risk for E&P Success

*Pandele Neculae, Ionelia Belciu, Mihaelia Zamfirescu, Constantin Popa, Alexandru Dragomir*

## Detection of Out-of-zone Growth in Multistage Hydraulic Fracturing by Microseismic Monitoring

*Leo Eisner, Tomas Fischer, Joel H. Le Calvez*

## Case Study of a Cadomin Gas Reservoir in the Alberta Deep Basin

*Carmen C. Dumitrescu, Fred Mayer*

## Geological Conditions of the Oil and Gas Generation, Migration and Accumulation in the Moesian Platform (Romania)

*Constantin Pene, Bogdan Niculescu, Octavian Coltoi*

## Topographic Effects on Central Loop TEM Data from Rugged Terrain in Shaanxi Province, Northwestern China

*Shu Yan, Xianxin Sh, Mingsheng Chen*

## Subsalt Wavefield Illumination and Amplitude Study on Mars Field in the Gulf of Mexico

*Nurul Kabir, Tom Burch, John Etgen*

## Using Spectral Decomposition and Coherence for Reservoir Delineation and Fluid Prediction in Extensively Explored Region

*Marianne Rauch-Davies, Michael A. Graham*

## Application of 3D Electrical Resistivity Imaging in an Underground Potash Mine

*Robert A. Eso, Douglas W. Oldenburg, Michael Maxwell*

## Prestack Depth Migration at Stolberg, Alberta

*Brad Robinson, Hugo Alvarez, Terence Krishnasamy, Michael Stevenson*

## Reconnaissance Marine CSEM Survey Design Using Detection Theory

*D. A. Pavlov, R. T. Houck*
Marine CSEM in Shallow Water: Acquisition and Interpretation Strategies
Paolo Dell’Aversana

Two-dimensional Magnetotelluric Inversion Via Reverse Time-migration Algorithm
Taeyoung Ha, Changsoo Shin

Detection of Tool Eccentricity Direction from Multicomponent Induction Responses
Dong Xue, Michael Rabinovich, Alex Bespalov, Tsili Wang

Rapid Interpretation of CSEM Reconnaissance Data
Leslie A. Wahrmund, Kenneth E. Green, Dmitriy Pavlov, Bill A. Gregory

Generalized Effective Medium Theory of Induced Polarization
Michael S. Zhdanov

Mathematical Modeling of Induction Measurements in the Presence of a Metal Mandrel
Gleb Borisov, Alex Bespalov, Yuliy Dashevsky, Mikhail Epov

Modeling Large-scale Geoelectrical Structures with Inhomogeneous Backgrounds Using the Integral Equation Method: Applications to the Bathymetry Effect Study in Marine CSEM Data
Ken Yoshioka, Michael S. Zhdanov

Two-and-a-half-dimensional Forward and Inverse Modeling for Marine CSEM Problems
A. Abubakar, T. Habashy, V. Druskin, D. Alumbaugh, A. Zerelli, L. Knizhnerman

Rigorous 3D Inversion of Marine CSEM Data Based on the Integral Equation Method
Alexander Gribenko, Michael Zhdanov

Integral Electric Current Method in 3D Electromagnetic Modeling for Large Conductivity Contrast
Michael S. Zhdanov, Vladimir I. Dmitriev, Alexander Gribenko

Successful Applications of CSAMT for Deep Geothermal Exploration in Urban Areas
Qingyun Di, Kunfa Shi, Yingxian Li, Ruo Wang, Changmin Fu, Zhiguo An

Shallow Marine Test of MTEM Method
Anton Zioikowski, Guy Hall, David Wright, Richard Carson, Oliver Peppe, Dan Tooth, James Mackay, Paul Chorley

Large-scale 3D Em Inversion Using Optimized Simulation Grids Nonconformal to the Model Space
Michael Commer, Gregory A. Newman

3D Depth-migration Operators for Marine Controlled-source Electromagnetic Data
Tage Rosten, Ketil Hokstad, Borge Arnsten

Electromagnetic Prospect Scanning: The Next Frontier for Exploration Using Seabed Logging
Dave Ridyard, Bjorn Petter Lindhom, Tor Atle Wicklund

Building an Electromagnetic Model Using Seismic Reflectivity
Oleg Portniaguine, Yili Wang, He Chen

Iterative Migration in Marine CSEM Data Interpretation
Michael S. Zhdanov, Takumi Ueda, Alexander Gribenko
3D Magnetic Inversion for Total Magnetization in Areas with Complicated Remanence ........................................................................................................................................................................ 846
  Peter G. Lelievre, Douglas W. Oldenburg, Nigel Phillips

The Quest for the Perfect Gravity Anomaly: Part 1 - New Calculation Standards ................. 851
  Xiong Li, Fugro Robertson, Thomas G. Hildenbrand, William J. Hinze, Randy Keller, Dhananjay Ravat, Michael Webring

The Quest for the Perfect Gravity Anomaly: Part 2 - Mass Effects and Anomaly Inversion ........................................................................................................................................................................ 856
  G. Randy Keller, Thomas G. Hildenbrand, William J. Hinze, Xiong Li, Fugro Robertson, Dhananjay Ravat, Michael Webring

Interactive 2D Magnetic Inversion: A Tool for Aiding Forward Modeling and Testing Geological Hypotheses ........................................................................................................................................................................ 861
  Valeria C. F. Barbosa, B. C. Silva

Gravity Inversion Using Entropic Regularization ........................................................................................................................................................................ 866
  B. C. Silva, Francisco S. Oliveira, Valeria C. F. Barbosa, Haroldo F. Campos Velho

Application of New Techniques to Gravity Survey in Search of Buried Hills ......................... 871
  Xu Xiaofang, Zhang Sheng, Yang Zhanjun, Suo Xiaodong

Effectiveness of a New Numerical Technique in Predicting Isostatic Gravity Anomaly ........................................................................................................................................................................ 876
  A. Vasanthi, K. Mallick, K. K. Sharma

Geological Interpretation of Aeromagnetic Survey Data, Gabal Amrit Area, Southern Eastern Desert, Egypt ........................................................................................................................................................................ 880
  Alaaeldien A. Aref, Moataz E. Elmanawy, Ashraf A. Hassaan

A New Approach to Subsurface Gravity ........................................................................................................................................................................ 881
  Mark E. Ander, Ed Biegert

SQUID Technology for Geophysical Exploration ........................................................................................................................................................................ 886
  R. Stolz, A. Chwala, V. Zakosarenko, M. Schulz, L. Fritzsch, H. G. Meyer

New Results of the Gravity Modeling of the Mahanadi Basin, India: An Aid to Hydrocarbon Exploration ........................................................................................................................................................................ 891
  K. Mallick, A. Vasanthi

Size Does Matter: Toward a Consistent 3D Gravity and Magnetic Model of the Bushveld Complex, South Africa ........................................................................................................................................................................ 896
  Susan Webb, Grant Cawthorn, Lew Ashwal, Shawn Letts, Trond Torsvik

Evaluation of Strategies to Manage Remanent-Magnetization Effects in Magnetic Field Inversion ........................................................................................................................................................................ 902
  Clive Foss

Interactive 3D Body Inversion on Gravity and Magnetic Data ............................................. 907
  Wenli Wu, Ping Hu

Gravimetric Distant Relief Effect in North America ........................................................................................................................................................................ 911
  Jan Mikuska, Ivan Marusiak, Roman Pasteka, Miroslav Hajach

Parametric Inversion As an Advanced Technique for Magnetic Source Depth Estimation ........................................................................................................................................................................ 916
  Clive Foss

Euler Deconvolution of Vertical Profiles of Potential Field Data ........................................... 921
  Giovanni Florio, Maurizio Fedi
Preliminary Paleomagnetic Results from Neogene Volcanic Rocks (eastern Carpathians) .......................................................................................................................... 926
Cristian Panaiotu, Cezar Iacob, Cristina Panaiotu, Denisa Jianu, Razvan Orza

Identification of Magnetic Anomalies from Basement, Intrasedimentary Faults and Salt Domes, and Basement Structural Interpretation for Upper Jurassic and Lower Cretaceous Gas Exploration in the Sabine Uplift Area of Texas and Louisiana ............................................................................................................. 930
William C. Pearson

Response of Induction Coil Magnetometers to Perturbations in Orientation .......................................................... 935
Karl Kappler, Nestor Cuevas, James W. Rector

SCALFUN: 3D Analysis of Potential Field Scaling Function to Determine Independently Or Simultaneously Structural Index and Depth to Source ............................................................................................................. 940
Maurizio Fedi, Giovanni Florio

Continuous Equivalent Source Method of 3D Potential-field Data ........................................................................ 946
Jiakang Li, Igor Morozov

Resolution of Seismic, Gravity, and Magnetic Data at Vertical Subsurface Interfaces Relevant to Seismic Imaging ............................................................................................................. 951
Bob Van Nieuwenhuisen, Bill Pramik

Seismic Interpretation and Studying for the Depositional Bodies Developed Within a Parasequence Set ......................................................... 956
Yun Ling, Jixiang Lin, Jun Gao, Desheng Sun

Dip, Azimuth, and Fault from Continuous Phase Spectrum .................................................................................. 961
Aftab Alam, James D. Taylor

Flattening with Geological Constraints ........................................................................................................... 966
Jesse Lomask, Antoine Guitton

Using an Interactive Match Filter to Advance Interpretation ................................................................................ 971
Norman Kalmanovitch, John Townsley

Application of Multiwavelet Seismic Trace Decomposition and Reconstruction to Seismic Data Interpretation and Reservoir Characterization .................................................................................. 976
Ping An

Mapping Thin Sandstone Reservoirs: Application of 3D Visualization and Spectral Decomposition Techniques............................................................................................................. 981

Triangle-zone Geometry in Cachar Thrust-fold Belt, India ....................................................................................... 986

Multicolor Display of Spectral Attributes ............................................................................................................ 991
Jianlei Liu, Kurt J. Marfurt

Integrated Approach to Reservoir Fairway Prediction: Late Jurassic Hanifa Formation in Eastern Province, Saudi Arabia .......................................................................................................................... 996
Abdel Fattah Bakhiet, Paul Lawrence, Greg Gregory, Tom Harland, David Tang, Abdel Ghayoum Ahmed, Fernando Neves, Konstantinos Makridis, Saudi Aramco

Analysis of Seismic Reflection Profile from Offshore Louisiana ................................................................................. 1001
Taher M. Sodagar, A. K. M. Sarwar

Implications of Wavelet Analysis to Reservoir Quality and Reserve Estimation: a Systematic Approach to Wavelet Estimation with an Example Case Study from the Deep Tuscaloosa Trend, Pointe Coupe Parish, Louisiana ................................................................................................................................. 1006
Michael L. Shoemaker, William A. Hill, Philip N. Trumbly
Design and Operation of a Deep Water, Wide-azimuth Node Seismic Survey ............................................. 1183
Allan A. Ross, Gerard Beaudoin

High Resolution 2D and 3D Modeling of IP Anomalies for Various Gold-bearing Deposits in Peruvian Mining Exploration Programs Using the Pole-pole Array ................................................. 1188
Jose R. Arce

Volume 3

A Discrete Conductor Transformation of Airborne Electromagnetic Data .................................................. 1193
Richard Smith, Ahmed Salem

An Analysis of Geophysical and Geological Data from the Gallen Test Site, Quebec, Canada .............................................................. 1198
Richard S. Smith, Li Zhen Cheng, Michel Allard, Michel Chouteau, Pierre Keating, Jean Lemieux, Marc A. Vallee, David Fountain, Denis Bois

An Analysis of Geophysical and Geological Data from the Iso/new Insco Test Site, Quebec, Canada .............................................................. 1203
Richard S. Smith, Li Zhen Cheng, Michel Allard, Pierre Keating, Michel Chouteau, Jean Lemieux, Marc A. Vallee, David Fountain, Denis Bois

Airborne Em Measurements Over the Shea Creek Uranium Prospect, Saskatchewan, Canada .............................................................. 1208
Richard S. Smith, Rodney Koch

Electromagnetic Interpretation in Complex Geological Environments .................................................. 1213
P. Walker, Y. Lamontagne

Analysis of Coal Seam Waves ............................................................................................................ 1218
Daniel J. Yancey, Matthias G. Imhof, John E. Feddock, Tod Gresham

Electromagnetic Modeling Based on the Rock Physics Description of the True Complexity of Rocks: Applications to Study of the IP Effect in Porphyry Copper Deposits ........................................................................ 1223
Abraham M. Emond, Michael S. Zhdanov, Erich U. Petersen

Constructing Piecewise-constant Models in Multidimensional Minimum-structure Inversions ........................................................................ 1229
Colin G. Farquharson

Physical Property Analysis, Numerical and Scale Modeling for Planning of Seismic Surveys: Voisey's Bay, Labrador .................................................. 1234
Deanne Duff, C. A. Hurich

Scattering Regimes and the Influence of Heterogeneity on the Seismic Detection of Mineral Exploration Targets ........................................................................ 1238
Elizabeth L'Heureux

Audio-magnetotelluric Exploration for Unconformity Uranium Deposits in the Athabasca Basin, Saskatchewan, Canada ........................................................................ 1243
Volkan Tuncer, Martyn J. Unsworth, Weerachai Siripunvaraporn, James A. Craven

Pge Exploration, Geophysics at Seagull, Nipigon Area, Canada, 2D and 3D Inversions on Data Over Seagull ........................................................................ 1248
L. E. Reed, K. Witherly, R. Middleton

Enhancing Uranium Exploration Through Seismic Methods and Potential Field Modeling at the Mcarthur River Mine Site, Saskatchewan, Canada ........................................................................ 1253
Clare O'Dowd, Garnet Wood, Dan Brisbin, Brian Powell
Borehole-to-surface Electrical Data Interpretation at Takigami Geothermal Field in Kyushu, Japan Using a Neural Network

Ho Trong Long, Hideki Mizunaga, Keisuke Ushijima

Resolution Analysis of Geophysical Images: Comparison Between Point-spread Function and Region-of-data Influence Measures

Carlyle R. Miller, Partha S. Routh

Advances in Airborne EM Acquisition and Processing for Uranium Exploration in the Athabasca Basin, Canada

Richard Irvine, Ken Witherly

Constrained Three-dimensional Inversion of Potential Field Data from the Voisey’s Bay Ni-Cu-Co Deposit, Labrador, Canada

Michael R. Ash, Michael Wheeler, Hugh Miller, Colin G. Farquharson, Alfred V. Dyck

3D Inversion of Time-domain Data with Application to San Nicolas

Scott Napier, Douglas Oldenburg, Eldad Haber

The VTEM Airborne Electromagnetic System—benchmarking Continuous Improvement Via Repeat Surveys Over Time

Ken Witherly, Richard Irvine

Dimensionality and Appraisal: The Bane of Geophysical Inversion

Louise Pellerin, Ester Falgas

A Brief Discussion of Helicopter Time-domain EM Systems

Daniel Sattell

Sensitivity Study of PP and PS AVO on Azimuthal Anisotropy

Charlie Jing, Tommie D. Rape, Shiyu Xu

Velocity-independent Layer Stripping of PP and PS Reflection Traveltimes

Pawan Dewangan, Ilya Tsvankin

Prestack Anisotropic Depth Imaging of Forseti (north Sea) 2D 4-C Data

Jonathan Liu, Andrew Shatilo

Estimating Anisotropic Parameters from PS Converted-wave Data: A Case Study

Lifeng Wang, Hengchang Dai, Xiang-Yang Li, Xianyi Sun

Field Trial of Fiber-optic Multicomponent Sensor System for Application in Ocean Bottom Seismic

Mark Thompson, Lasse Amundsen, Per Ivar Karstad, Jan Langhammer, Hilde Nakstad, Morten Eriksrud

Successful Use of Converted-wave Data for Interpretation and Well Optimization on Grane

J. P. Fjellanger, F. Boen, K. J. Ronning

Investigations with a Cylindrical Sensor Housing - Implications for OBC Acquisition

Steve Heiney, Marvin Johnson, Mike Norris

Characterizing Volcanic Gas Reservoirs Using PP- and PS-seismic Data: A Case Study

Xianyi Sun, Peiyun Jiang, Hengchang Dai, Xiang-Yang Li

Anisotropic Velocity Updating for Converted-wave Prestack Time Migration

Xiaogui Miao, Torre Zuk

Dedicated Processing Sequence for 4D Signal Estimation After Receiver Decimation of Valhall OBC Data

Jean-Luc Boelle, Andrea Grandi, Mohamed Amine Soudani
Seismic, Geotechnical, and Earthquake Engineering Site Characterization

Oz Yilmaz, Murat Eser, Mehmet Berilgen

Measuring Electric Resistivity of Rock Specimens Injected with Gas, Liquid, and Supercritical CO2

Kyosuke Onishi, Yoshihiko Ishikawa, Yasuhiro Yamada, Toshifumi Matsuoka

High Resolution Seismic Imaging of a Shallow Gas Reservoir, Alberta, Canada

Jawwad Ahmad, Douglas R. Schmitt

Seismic Investigations in Residential Area Liquefied by Mid-niigata Prefecture Earthquake

Koichi Hayashi, Masahito Tamura, Neagu Cristian, Yasuaki Kikuchi, Katsuaki Ando, Yoshiyuki Ito

Characterization of an Unstable Rock Slope Using Active and Passive Seismic Techniques

Hansruedi Maurer, Tom Spillmann, Björn Heincke, Heike Willenberg, Alan G. Green

Estimation of Pseudo-two-dimensional Shear-velocity Section by Inversion of High-frequency Surface Waves

Yinhe Luo, Jiangping Liu, Jianghai Xia, Yixian Xu, Qingsheng Liu

Frequency Effects of the Partially Water-saturated Zone Thickness on Shallow Seismic Reflection Data

Steven D. Sloan, Georgios P. Tsoflias, Don W. Steeples

An Example of Automated 3D Ultra-shallow Seismic Acquisition

Gerard P. Czarnecki, Georgios P. Tsoflias, Don W. Steeples, Steven D. Sloan, Robert C. Eslick

Fracture-orientation Determination in Sedimentary Rocks Using Multicomponent Ground-penetrating Radar Measurements

David Ramirez-Mejia, Roger A. Young, Surinder Sahai, Todd Halihan

Inversion of Fundamental and Higher-order Mode TE and TM Dispersive GPR Data for Properties of a Thin-Surface Waveguide in New England

Jan van der Kruk, ETH Zurich, Robert W. Jacob

Near-surface Data Clustering for Imaging Enhancement

Aldo L. Vesnaver, Ralph Bridle, Robert Ley, Wilson Rowe

Using SkyTEM to Build a Hydrogeological Framework at the Tooele Army Depot, Utah

Louise Pellerin, Les P. Beard, Wayne Mandell, Carl E. Cole

Laterally Constrained Inversion of Ground Roll of Seismic Reflection Records

Laura Valentina Socco, Daniele Boiero, Roger Wisen, Sebastiano Foti

Characterizing a GPR-antenna System by Near-field Electric Field Measurements

Rita Streich, Jan van der Kruk

The Effect of Electrode Contact Resistance and Capacitive Coupling on Complex Resistivity Measurements

Thomas Ingeman-Nielsen

3D Characterization of a Channel System in an Outcrop Reservoir Analog Derived from GPR and Measured Sections, Rattlesnake Ridge, Wyoming

Heidy Alejandra Correa, Roger A. Young, Roger M. Slatt
Extensive Testing of Sled-mounted Geophone Arrays for Near-surface (0-4 M) Layers in Floodplain Sedimentary Facies: Atchafalaya Basin, Indian Bayou, Louisiana
Juan M. Lorenzo, Adeniyi Saanumi, Clay Westbrook, Sidney Egnew, Sam Bentley, Emilio E. Vera

Modeling the near-surface using high-resolution seismic
Ramzy AlZayer, Tariq Alkhalifah

Estimating electric permittivity from GPR surface-reflection data for water content estimates
Evert Slob, S‡bastien Lambot

Data analysis from a seismic-while-drilling (SWD) rotary percussive source system
P. Reppert and D. Dana

Evaluation of geophysical methods for the detection of subsurface Tetrachloroethylene in controlled spill experiments
Aldo Mazzella, Ernest Majer

Buried mudpit delineation from electromagnetic surveys - A case history of a student project
Joshua P. Richardson, Douglas E. Moore, Sean P. Trisch, David Forel, Roger M. Turpening, Wayne D. Pennington

A Robust Approach for Resolving Near-surface Effects: Statics and Dynamics
M. N. Al-Ali, D. J. Verschuur

Rayleigh-wave Diffractions Due to a Void in the Layered Half-space
Jianghai Xia, Yixian Xu, Richard D. Miller, Jonathan E. Nyquist

Using Elastic-wave Seismic Data to Image an Ultra-shallow Buried Paleo-channel
Gian Luigi Fradelizio, Colin Zelt, Alan Levander

Rvsp Surveys and Borehole Sonar Imaging to Map Abandoned Coal Mines
Bart Hoekstra, Jim Pfeiffer, Kanaan Hanna

Potential Application of Biogeophysics to EOR and Remediation Investigations
Caroline A. Davis, Estella Atekwana

Acoustic Imaging Through Sea Ice
Lee M. Liberty, John H. Bradford, Troy R. Brosten, David Dickins

Shear-wave Seismic Reflection Images of the Big Creek Fault Zone Near Helena, Arkansas
James B. Harris, Jennifer L. Sorrells

Relative Importance of Magnetic Moments in UXO Applications
Vinicio Sanchez, Yaoguo Li, Misac Nabighian, David Wright

High-resolution Seismic-reflection Imaging. 25 Years of Change in I-70 Sinkhole, Russell County, Kansas
Richard D. Miller, Don W. Steeples, Jamie L. Lambrecht, Neil Croxton

Measuring Complex-dielectric Permittivity from GPR to Estimate Liquid Water Content in Snow
John H. Bradford, Joel T. Harpr

Passive Seismic Reflectivity Imaging with Ocean-bottom Cable Data
Detlef Hohl, Albena Mateeva

On Spectral Evaluation in Microseismic Survey
Virgil Bardan
Continuous Monitoring of Crosswell Seismic Traveltime ........................................................ 1605
  Thomas M. Daley, Paul G. Silver, Fenglin Niu, Ernest L. Majer

Microseismic Background Study for Gas Field Exploration .................................................... 1610
  S. B. Turuntaev, V. N. Burchik, D. S. Turuntaev

Estimates of the Hypocenter Location Errors of Passive Microseismic Events
Located by Using a 3-C VSP Downhole Geophone Array ..................................................... 1615
  Zuolin Chen, Robert R. Stewart

Passive Seismic Monitoring Using Gaussian Beams with Application to Borehole
Data from the San Andreas Fault at Parkfield, California .................................................. 1620
  Susanne Rentsch, Stefan Buske, Joern Kummerow, Serge A. Shapiro, Freie U; J. Andres
  Chavarria, Alexander Goertz

Fluid Flow Monitoring in Middle East Carbonate Reservoirs: Alternatives to 4D
Seismic ................................................................................................................................. 1625
  Shiv N. Dasgupta

Laboratory Study of Microseismicity Caused by Pore Pressure Increase .............................. 1630
  S. B. Turuntaev, E. V. Zenchenko, A. N. Dmitriev

Quality Control/assurance Reporting of Passive Microseismic Data .................................... 1635
  Shawn Maxwell, Ulrich Zimmer, Norm Warpsinski, Charlie Waltman

Interferometric Imaging of Ocean Bottom Noise .................................................................. 1640
  Peter Stewart

Trend-kriged Seismic Velocities to Predict Pore Pressure and to Model Effective
Stress for Reservoir Characterization in a Deepwater Basin .............................................. 1645
  S. Noeth, C. M. Sayers, P. J. Hooyman, L. den Boer, N. Banik, R. Bachrach, G. Bunge, L.
  Leu, J. Moore

Well-constrained Seismic Estimation of Pore Pressure with Uncertainty ........................... 1650
  Colin M. Sayers, Lennert D. den Boer, Zsolt R. Nagy, Patrick J. Hooyman

High-resolution Pore Pressure Prediction Using Seismic Inversion and Velocity
Analysis ................................................................................................................................. 1655
  Jalal Khazanehdari, Nader Dutta

Vp/Vs Ratio in Gas-pressured Saturated Sandstones ............................................................... 1660
  Tiziana Vanorio, Gary Mavko

Pore-pressure Prediction Using an Eaton’s Approach for PS-waves ..................................... 1665
  Kimberly M. Kumar, Robert J. Ferguson, Dan Ebrom, Phil Heppard

Grid Tomography As a Tool for Pore Pressure Prediction. A Case History ......................... 1670
  Patrizia Cibin, Davide Calcagni, Luigi Pizzaferru, Gianfranco Bagnoli, Fabrizio Bolondi

Overpressure and Shale Properties: Stress Unloading Or Smectite-illite
Transformation? .................................................................................................................. 1675
  Keith Katahara

Evaluation, Calibration, and Ranking of Pore-pressure Prediction Models ......................... 1680
  Mario A. Gutierrez, Neil R. Braunsdorf, Brent A. Couzens

Exploration of Earth’s Deep Time: Four Decades of Scientific Ocean Drilling .................. 1685
  Paul J. Fox

Integrated Ocean Drilling Program: Drilling to Understand Earth’s Past, Present, and Future ................................................................................................................................. 1686
  Kelly A. Kryc
The IODP Site Survey Data Bank: an Example of Lifecycle Cyber-infrastructure for Drilling Projects
Stephen P. Miller, Christina Massell Symons, John Helly

Seg Advanced Modeling Consortium for the Industry
J. Bee Bednar, William L. Abriel, Biondo Biondi, Stew Levin, Arthur Cheng

Monitoring and Modeling Production-induced Surface Deformation
T. A. Herring, B. H. Hager, S. Sarkar

Recent Controlled-source EM Results Show Positive IMpact on Exploration at Shell
Dirk Smit, Saad Saleh, John Voon, Michael Costello, Jochen Moser

Measuring Horizontal Resistivity RH in Horizontal Well Logging
T. Hagiwara

Seismic Characterization of Multiple Fracture Sets at Rulison Field, Colorado
Ivan Vasconcelos, Vladimir Grechka

The Robustness of Vp/Vs Mapping
Duojun A. Zhang, Larry R. Lines

First Borehole Acoustic Reflection Survey Mapping a Deepwater Turbidite Sand
Wagner Maia, Ricardo Rubio, Fabio Junior, Jakob Haldorsen, Rafael Guerra, Cereza Dominguez

Accuracy and Limitations in Seismic Modeling of Reservoir
Pierre Thore

Combined Inversion of 4D Seismic Waveform Data and Production Data Using Ensemble Kalman Filter
Pierre Thore

Water Saturation Estimation Using a Support Vector Machine
Bo Zhao, Huawei Zhou, Xingong Li, De-hua Han

Uncertainty in Discriminating Between Net-to-gross and Water Saturation for Fine-layered Reservoirs
A. Stovas, M. Landro

Monte Carlo AVO Analysis for Lithofacies Classification
Tapan Mukerji, Scott Singleton, Miguel Ascanio, Richard Ude, Marie Schneider

Application of the Fused Fault Block Method in Structural Modeling and Reservoir Gridding of Complex Structures
Karen S. Hoffman, John W. Neave, Erk H. Nilsen

Integrating Neural Networks and Fuzzy Logic for Improved Reservoir Property Prediction and Prospect Ranking
Fred Aminzadeh, Friso Brouwer

The Effective Permeability of Fractured Reservoirs and Composite Porous Media
Morten Jakobsen

Crossover Frequencies of Seismic Attenuation in Fractured Porous Rocks
Miroslav Brajanovski, Tobias Muller, Boris Gurevich

Eocene Formation's Reservoir Characterization with Seismic Inversion in Bohai Bay, People's Republic of China
Lixin Tian, Qinglong Xia, Chunheng Liu, Xinhui Zhou, Zhanghong Shen

Robust Wavelet Estimation and Quality Measures
Peter Harris
Interpretation of Microseismicity Induced by Hydraulic Fracturing
Carsten Dinske, Elmar Rothert, Serge Shapiro ........................................ 1775

Acoustic Impedance Estimation After Prestack Depth Migration
Francois Schaub, Philippe Thierry, Helene Beucher, Didier Renard ........ 1780

Estimation of Production-induced Stress Changes from 4D Finite Offset Time
Shifts ........................................................................................................ 1785
Keith Hawkins, Graham Conroy, Peter Harris

Volume 4

Geomechanical Modeling As a Reservoir Characterization Tool at Rulison Field,
Piceance Basin, Colorado ........................................................................ 1790
Shannon Higgins, Thomas L. Davis, Tom Bratton

Extracting Horizon Patches and Geobodies from 3D Seismic Waveform
Sequences ................................................................................................ 1795
Hilde Grude Borgos, Oddgeir Gramstad, Geir Vaaland Dahl, Pierre Le Guerm, Lars
Sonneland, Jose Fernando Rosalba

Prestack Seismic Inversion of Offset Stacked Data: Diagnostics and Remedies
for Overestimated Angles of Incidence, a Case Study ............................ 1800
Leon Baren, Henrik Juhl Hansen

Technology of Hydrocarbon Indication and Delineation Using Nonlinear Seismic
Effects ................................................................................................. 1805
A. P. Zhukov, M. B. Sheerson, K. I. Loginov, V. E. Shulakova

Water-saturation Determination Using 4D/3C Seismic Data ................... 1810
Fereidoon Vasheghani Farahani, Mohammad Ali Riahi

A New 3D Seismic-stratigraphic Methodology Applied to an Offshore Brazil Case 1815
Pierre Le Guerm, Berengere Savary, Hilde Grude Borgos, Geir Vaaland Dahl, Lars
Sonneland, Andreia Regina Dias Elias, Jose Fernando Rosalba

Facies Probability from Mixture Distributions with Nonstationary Impedance
Errors .................................................................................................... 1820
Jeremy Gallop, Encana Corp

Effective Stress-based Reservoir Characterization in an Offshore Basin ........ 1825
Ran Bachrach, Niranjan Banik, Mita Sengupta, Sheila Noeth, Jianchun Dai, George Bunge,
Ben Flack, Randy Utech, Lei Leu, Bill Troyer, Jerry Moore

Rock-physics Model-based Seismic Inversion ........................................ 1830
Kyle Spikes, Jack Dvorkin, Gary Mavko

Practical Aspects of Curvature Computations from Seismic Horizons .......... 1835
Satinder Chopra, Vladimir Alexeev, Kurt Marfurt

Fracture Characterization from Scattered Seismic Energy: A Case Study .... 1840
Samantha Grandi, Mark E. Willis, M. Nafi Toksflz, Sung Yuh

F-K Domain Characteristics of the Seismic Response of a Set of Parallel Discrete
Fractures .............................................................................................. 1845
Yang Zhang, Xander Campman, Samantha Grandi, Shihong Chi, Mark E. Willis, M. Nafi
Toksflz, Daniel R. Burns

Image Processing Techniques Applied to 3D Attribute Volumes for Lithology
Distribution ......................................................................................... 1850
Rafael Sanguinetti
Heavy-oil Reservoir Characterization Using Vp/vs Ratios and Spectral Decomposition
Carmen C. Dumitrescu, Larry Lines

Incorporating Rock Property Constraints and Geological Insights Into Seismic Inversion
Christopher Skelt, David Glenn, Steven Smith, Cung Vu, Skip Walden, Paul Anderson, Brad Bacon

Azimuthal AVO Workflow and Evaluation at an East Texas Fractured Reservoir
David Wang, Mary Johns, Shiyu Xu, Chih-Ping Lu, Da Zhou

Q-estimation Using Gabor-morlet Joint Time-frequency Analysis
Scott Singleton, M. Turhan Taner, Sven Treitel

Wide-angle Inversion for Density: Tests for Heavy-oil Reservoir Characterization
Baishali Roy, Phil Anno, Michael Gurch

Reservoir-quality Prediction by Integrating Sequence Stratigraphy and Rock Physics
Tanima Dutta, Tapan Mukerji, Gary Mavko, Per Avseth

Using Shear-wave Anisotropy to Condition a DFN Model in the Presence of Multiple Fracture Sets
Martin J. Terrell, Mary Johns, Thomas L. Davis

An Algorithm for Calculation of Bed Thickness and Reflection Coefficients from Amplitude Spectrum
Charles I. Puryear, John P. Castagna

Frequency-dependent Seismic Reflection from a Permeable Boundary in Fractured Reservoir
Gennady Goloshubin, Dmitriy Silin

Elastic and Petrophysical Bounds for Unconsolidated Sediments
Pinar Hacikoylu, Jack Dvorkin, Gary Mavko

Sensitivities of Directional Electromagnetic Measurements for Well Placement and Formation Evaluation While Drilling
Dzevat Omeragic, Alain Dumont, Cengiz Esmerosy, Tarek Habashy, Qiming Li, Gerald Minerbo, Richard Rosthal, Jan Smits, Jacques Tabanou

Integrated Regional Tectonic and Petrophysical Investigation of the Williston Basin Sediments in and Around the Weyburn CO2 Sequestration Reservoir
Sandor Sule, Zoltan Hajnal, Bhaskar Pandit

Seismic Attribute Analysis and Geobody Visualization: Detection and Delineation of High-gamma Sand Sequences in a Steam-affected and Merged 3D Seismic Data Set of a Highly Heterogeneous Reservoir
Sailendra N. Mahapatra, Matthias G. Imhof

Lithofacies Prediction in Clastic Deep-water Reservoirs
Shauna K. Oppert, Michael E. Farrell, Chris J. Finn

Exploiting the Nonuniqueness of Seismic Inversion to Obtain Alternate Scenarios of Economic Interest
Rebecca Saltzer, Chris Finn

Spectral Decomposition Response to Reservoir Fluids from a Deepwater Reservoir
Ganglin Chen, Chris Finn, Ramesh Neelamani, Dominique Gillard, Gianni Matteucci, Bill Fahmy
Slow Compressional Wave in Porous Media: Finite Difference Simulations on Microscale.......................................................... 1932
Erik H. Saenger, Oliver S. Krueger, Serge A. Shapiro, Radim Ciz, Boris Gurevich

Can Gas Sand Have a Large Poisson's Ratio? .......................................................................................................................... 1937
Jack Dvorkin

Effective Elastic Properties of Fractured Rocks: Dynamic Versus Static Considerations .......................................................................................................................... 1942
Erik H. Saenger, Oliver S. Krueger, Serge A. Shapiro

Rock Physics Models of Gas Hydrates from Deepwater, Unconsolidated Sediments .......................................................................................................................................... 1947
Diana Sava, Bob Hardage

Subsurface Property Interpolation in Multiattribute Space-Porosities on the South Arne Field............................................................................................................................................. 1952
Thomas Mejer Hansen, Klaus Mosegaard, Christian Rau Schitt, Amerada Hess

Effective Fluid Transport Properties of Deformable Rocks.......................................................................................................................... 1957
Tobias M. Muller, Boris Gurevich

Pressure Dependence of Elastic Wave Velocities in Sandstones .................................................................................................................. 1962
Rishi Singh, Chandra Rai, Carl Sondergeld

Velocity Inversion for Changes in Crack-aspect Ratio Spectra During Heat Treatment of Berea Sandstone ............................................................................................................................................. 1967
D. T. Tran, C. S. Rai, C. H. Sondergeld

Youngseuk Keehm, Kurt Sternlof, Tapan Mukerji

Oliver S. Krueger, Erik H. Saenger, Serge A. Shapiro

Frequency Dependence of Velocity in Carbonate Rocks .......................................................................................................................... 1982
Nathalie Lucet, Bernard Zinszner

Fluid Substitution in Porous Rocks with Aligned Cracks: Theory Versus Numerical Modeling............................................................................................................................................. 1987
Luke Brown, Boris Gurevich, Dina Makarynska, Radim Ciz, Christoph H. Arns, Mark A. Knackstedt

Interlayer Flow As a Reason for P-wave Attenuation in Multilayered Gas-hydrate-bearing Sediments ............................................................................................................................................. 1992
Andreas Gerner, Erik H. Saenger, Serge A. Shapiro

Attenuation Estimation with Continuous Wavelet Transforms.......................................................................................................................... 1997
Shenghong Tai, De-hua Han, John P. Castagna

Porosity-depth Trends of Chalk: Calculating Effective Burial by Using Biot's Coefficient ............................................................................................................................................. 2002
Ida Lykke Fabricius, Anette Krogboll, Dan Olsen

Constraining C for Fluid Properties Inversion ............................................................................................................................................. 2007
Maria Rojas, De-hua Han, Carlos Cobos

High-resolution Fracture Characterization from Azimuthal P-wave Seismic Surveys Using Rock Physics Model-based Bayesian Inversion - Pinedale Field, Wyoming ............................................................................................................................................. 2012
Mita Sengupta, Ran Bachrach
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acoustic Velocity Variations During Inelastic Compaction of Porous Sandstone</td>
<td>2017</td>
</tr>
<tr>
<td>Static and Dynamic Young's Modulus of North Sea Chalk</td>
<td>2020</td>
</tr>
<tr>
<td>Seismic Attenuation in Rocks Saturated with Multiphase Fluids</td>
<td>2025</td>
</tr>
<tr>
<td>Image Analysis and Pattern Recognition for Porosity Estimation from Thin Sections</td>
<td>2030</td>
</tr>
<tr>
<td>Estimating Flow Properties of Porous Media with a Model for Dynamic Diffusion</td>
<td>2035</td>
</tr>
<tr>
<td>Measuring and Modeling the Elastic Moduli of Clay Minerals</td>
<td>2040</td>
</tr>
<tr>
<td>Acoustic Properties of Heavy Oil - Measured Data</td>
<td>2045</td>
</tr>
<tr>
<td>On the Applicability of Gassmann Model in Carbonates</td>
<td>2050</td>
</tr>
<tr>
<td>The Role of Fluid on Wave Propagation Across a Nonperfect Interface</td>
<td>2055</td>
</tr>
<tr>
<td>Attenuation and Velocity Dispersion Modeling of Bitumen Saturated Sand</td>
<td>2060</td>
</tr>
<tr>
<td>Numerical Simulation of Resonances in Microtomographic Models</td>
<td>2065</td>
</tr>
<tr>
<td>Shear Properties of Oil Shales</td>
<td>2070</td>
</tr>
<tr>
<td>Modulus-domain Rock-physics Diagnostics: New Insights in Realistic Granular Media</td>
<td>2075</td>
</tr>
<tr>
<td>Velocity Measurements of Conglomerates and Pressure Sensitivity Analysis of AVA Response</td>
<td>2080</td>
</tr>
<tr>
<td>Numerical Evaluation of the Effective Dielectric Property of Multicomponent Three-dimensional Mixtures Using a Finite-difference Time-domain Method</td>
<td>2085</td>
</tr>
<tr>
<td>Seismic Attenuation (Q) Estimation from VSP Data and Qp Versus Vp/Vs</td>
<td>2090</td>
</tr>
<tr>
<td>Combined Porosity, Saturation, and Net-to-gross Estimation from Rock Physics Templates</td>
<td>2095</td>
</tr>
<tr>
<td>Numerical Modeling of Seismic Attenuation Due to Wave Induced Flow in Heterogenous Materials</td>
<td>2100</td>
</tr>
<tr>
<td>Stress-induced Velocity Anisotropy of Unconsolidated Sand Under Realistic Reservoir-stress Conditions</td>
<td>2105</td>
</tr>
</tbody>
</table>
Kirchhoff Inversion for Incident Waves Synthesized from Common-shot Data Gatherers ................................................................. 2109
Norman Bleistein

Sonic-density Relationship for Southern North Sea Evaporites .................................................................................. 2114
Milos Savic

Can We Make Inversion Work? ................................................................. 2119
J. Bee Bednar, Chris J. Bednar, Changsoo Shin

Rock Parameter Inversion Using Well and Depth Domain Seismic Data by SRM Neural Networks ................................................................. 2123
Zhang Xiangjun, Xu Jianjun, Li Qinxue

On the Background Model for Nonlinear Inversion of Seismic Data ................................................................. 2127
C. H. Lam, S. Bakrac, P. M. van den Berg, A. Gisolf

Seismic Data Preparation for Improved Elastic Inversion of Angle Stacks ................................................................. 2132
Yahui Yin, William Pillet

Seismostratigraphic Inversion: Appraisal, Ambiguity, and Uncertainty ................................................................. 2137
Matthias G. Imhof, Arvind K. Sharma

Velocity Model Building Using Migration to Residual Time .................................................................................. 2142
Tilman Kluever

True/preserving Amplitude Seismic Imaging Based on Gaussian Beams Application ................................................................. 2147
M. Protasov, V. Tcheverda

Waveform Inversion of a Stacked Section Using an Exploding Reflector Concept ................................................................. 2152
Changsoo Shin, Dong-Joo Min, Taeyoung Ha

Angle-dependent Attenuation Estimates from a Walkaway VSP .................................................................................. 2157
Rongrong Lu, James Rickett, Joe Stefani

Parametric Sparse-spike Deconvolution and the Recovery of the Acoustic Impedance ................................................................. 2162
Danilo R. Velis

Direct Waveform Inversion Via Iterative Inverse Propagation .................................................................................. 2167
R. Brian Schlottmann

Joint Estimation of Reservoir and Elastic Parameters from Seismic Amplitudes Using a Monte Carlo Method ................................................................. 2172
Miguel Bosch, Luis Cara, Alonso Navarro

Rock Physics and Multiple-point Geostatistics for Seismic Inversion .................................................................................. 2177
Ezequiel F. Gonzalez, Gary Mavko, Tapan Mukerji

CRS-stack-based Seismic Imaging for Land Data - A Case Study from Saudi Arabia ................................................................. 2182
Zeno Heilmann, Juergen Mann, Ingo Koglin

Stratigraphic Elastic Inversion for Seismic Lithology Discrimination in a Turbiditic Reservoir ................................................................. 2187
J. P. Coulon, Y. Lafet, B. Deschizeaux, P. M. Doyen, P. Duboz

2D Fine-scale Velocity Model of the Subduction Channel in Gulf of Gayaquil by Integrated Iterative PSDM and Simulated Annealing Optimization .................................................................................. 2192
William Agudelo, Alessandra Ribodetti, Stephane Operto, Jean Virieux, Jean-Yves Collot
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-resolution Reservoir Rock Properties Via Joint Prestack Seismic Amplitude Inversion</td>
<td>2197</td>
</tr>
<tr>
<td>A. K. Dey, M. D. Sacchi, A. Gisolf</td>
<td></td>
</tr>
<tr>
<td>AMO Inversion to a Common Azimuth Data Set</td>
<td>2202</td>
</tr>
<tr>
<td>Robert G. Clapp</td>
<td></td>
</tr>
<tr>
<td>Fluid Property Discrimination by AVO Inversion</td>
<td>2207</td>
</tr>
<tr>
<td>Xin-gang Chi, De-hua Han</td>
<td></td>
</tr>
<tr>
<td>High-resolution Seismic from Band-limited Data Using the Scaling Laws of the Wavelet Transforms</td>
<td>2212</td>
</tr>
<tr>
<td>K. R. Sandhya Devi</td>
<td></td>
</tr>
<tr>
<td>Real-coded Multiscale Genetic Algorithm for Prestack Waveform Inversion</td>
<td>2217</td>
</tr>
<tr>
<td>Tiancong Hong, Mrinal K. Sen</td>
<td></td>
</tr>
<tr>
<td>Seismic Inversion of Single-sensor Land 3D Seismic Survey: Kuwait, Magwa Field, Wara Reservoir</td>
<td>2222</td>
</tr>
<tr>
<td>Osman Al-Khaled, Youssef Al-Zaubi, Mafizar Rahaman, Jarrah Al-Jenai, Theknat Hussain</td>
<td></td>
</tr>
<tr>
<td>Thin-bed Reflectivity Inversion</td>
<td>2227</td>
</tr>
<tr>
<td>Satinder Chopra, John Castagna, Oleg Pomiaguine</td>
<td></td>
</tr>
<tr>
<td>Petroacoustic Properties Estimation Using Seismic Simultaneous Inversion: Are We There Yet?</td>
<td>2232</td>
</tr>
<tr>
<td>Juan Soldo</td>
<td></td>
</tr>
<tr>
<td>The Inverse-scattering Series for Tasks Associated with Primaries: Direct Nonlinear Inversion of 1D Elastic Media</td>
<td>2237</td>
</tr>
<tr>
<td>Haiyan Zhang, Arthur B. Weglein</td>
<td></td>
</tr>
<tr>
<td>Fast Geostatistical Stochastic Inversion in a Stratigraphic Grid</td>
<td>2242</td>
</tr>
<tr>
<td>I. Escobar, P. Williamson, A. Cherrett, P. M. Doyen, R. Bornard, R. Moyen, T. Crozat</td>
<td></td>
</tr>
<tr>
<td>Petrophysical Seismic Inversion Applied to the Troll Field</td>
<td>2247</td>
</tr>
<tr>
<td>Thierry Coleou, Jean-Luc Formento, Marianne Gram-Jensen, Aart-Jan van Wijngaarden, Annelin Norenes Haaland, Ragnhild Ona</td>
<td></td>
</tr>
<tr>
<td>Structure Preserving Regularization for Sparse Deconvolution</td>
<td>2252</td>
</tr>
<tr>
<td>Juefu Wang, Xishuo Wang, Mike Perz</td>
<td></td>
</tr>
<tr>
<td>Practice and Pitfalls in NMO-based Differential Semblance Velocity Analysis</td>
<td>2257</td>
</tr>
<tr>
<td>Richard W. Verm, William W. Symes</td>
<td></td>
</tr>
<tr>
<td>Geostatistical AVO Inversion on Smorbukk Sor</td>
<td>2262</td>
</tr>
<tr>
<td>Paal Dahle, Ragnar Hauge, Odd Kolbjornsen, Nam Hoai Pham</td>
<td></td>
</tr>
<tr>
<td>Nonlinear Uncertainty Analysis in Reservoir Seismic Modeling and Inverse Problems</td>
<td>2267</td>
</tr>
<tr>
<td>D. E. Lumley</td>
<td></td>
</tr>
<tr>
<td>Leaky Mode: A Horizontal Seismic Attenuation Mechanism in a Gas-hydrate-bearing Sediment</td>
<td>2272</td>
</tr>
<tr>
<td>Sebastian R. Zanoth, Erik H. Saenger, Oliver S. Krueger, Serge A. Shapiro</td>
<td></td>
</tr>
<tr>
<td>Amplitude Corrections for a Narrow-angle Elastic Wave Equation</td>
<td>2277</td>
</tr>
<tr>
<td>Doug Angus</td>
<td></td>
</tr>
<tr>
<td>3D Acoustic and Elastic Modeling with Marmousi2</td>
<td>2283</td>
</tr>
<tr>
<td>Neill P. Symons, David F. Aldridge, Matthew M. Haney</td>
<td></td>
</tr>
<tr>
<td>Prediction of 4D Seismic Responses for the Otway Basin CO2 Sequestration Site</td>
<td>2288</td>
</tr>
<tr>
<td>Ruiping Li, Milovan Urosevic, Kevin Dodds</td>
<td></td>
</tr>
</tbody>
</table>
Phase-velocity Approximation in the Finely Layered Sediments ........................................... 2293
A. Stovas, B. Arntsen

Time-to-depth Conversion and Uncertainty Assessment Using Average Velocity Modeling .......................................................... 2298
David C. Bartel, Mark Busby, Jeff Nealon, Joerg Zaske

Source Propagation in a Blocky Model ............................................................................. 2303
Pierre Thore

Acoustic and Elastic Modeling Using Bases for Band-limited Functions .................. 2308
Nicholas Coult, Kristian Sandberg, Gregory Beylkin, Anthony Vassiliou

Sub-basalt Imaging Using Converted Waves: A Numerical Approach .................. 2312
Laxmidhar Behera

About Some Specifics of Seismic Wave Propagation Caused by Disposition of Seismic Source Onto Ice Cover of Shallow Basins .................................................. 2317
S. Goldin, V. Khaidukov, V. Tcheverda, O. Gorsky

3D Frequency-domain Finite-difference Modeling of Acoustic Wave Propagation Using a Massively Parallel Direct Solver: A Feasibility Study .................................................. 2322
S. Operto, J. Virieux, P. Amestoy, L. Giraud

Neural Network for Parameters Determination and Seismic Pattern Detection .................................................................................................................. 2327
Kou-Yuan Huang, Jiun-De You, Kai-Ju Chen, Hung-Lin Lai, An-Jin Don

3D Synthetic Acoustic Log: Finite Difference Approach .............................................. 2332
V. Kostin, D. Pissarenko, G. Reshetova, V. Tcheverda

Model-based Decimation of Input Data for Delayed-shot/plane-wave Migration for the Purpose of Subsalt Velocity Model Building ................................................. 2337
Bin Wang, Fuchun Gao, Dan Wheaton, Volker Dirks

Effects of Free-surface Topography on Moving Seismic Source Modeling .............. 2342
Stig Hestholm, Menno Dillen, George McMechan, Mark Moran, Stephen Ketcham, Thomas Anderson

Differential Mesh Generation ......................................................................................... 2347
Jeff Shragge

Approximate Ray Tracing for QP-waves in Weakly TI Media ..................................... 2352
Kaveh Dehghan, Veronique Farra, Laurence Marie-Anne Nicoletis

Virtual Areal-shot Records by Quasi-monte Carlo Interferometry ............................. 2357
Stewart A. Levin

Velocity Dispersion Estimation .................................................................................... 2362
Carlos Cobos, De-hua Han

Global-scale Seismic Interferometry: Numerical Validation of the Acoustic Correlation Integral .................................................................................................................. 2366
Elmer Ruigrok, Deyan Draganov, Kees Wapenaar, Jan Thorbecke

Marine Application of Hydrocarbon Microtremor Analysis (HyMAS) ....................... 2371
Reto Holzner, Patrik Eschle, Rodolphe Dewarrat, Marc Lambert, Rene Graf

Application of the Nearly Perfectly Matched Layer in Acoustic Wave Modeling ...... 2375
W. Hu, A. Abubakar, T. Habashy

Interpretation of Hydrocarbon Microtremors As Nonlinear Oscillations Driven by Oceanic Seismic Waves ......................................................................................... 2380
Reto Holzner, Patrik Eschle, Frehner, Stefan Schmalholz, Yuri Podladchikov
Seismic Modeling of Compositional and Geochemical Effects in CO2 Sequestration ................................................................. 238
Ravi Shekhar, Richard L. Gibson Jr, Ajitabh Kumar, Akhil Datta-Gupta

Identification of Low Velocity and High Attenuation Zones in Synthetic Seismic Spectra ................................................................. 239
Marc Lambert, Reto Holzner, Stefan Schmalholz, Yuri Podladchikov

First-order Perturbations of the Seismic Response of Fluid-filled Stratified Poro Elastic Media ................................................................. 239
Louis de Barros, Michel Dietrich

2.5D Anisotropic Elastic Finite-difference Modeling ......................................................................................................................... 240
Francisco Silva Neto, Jessie Costa, Amelia Novais

The Computation of Traveltimes When Assuming Locally Circular Or Spherical Wavefronts ................................................................. 240
John C. Bancroft, Xiang Du

Seismic Imaging in the Curvelet Domain and Its Implications for the Curvelet Design ................................................................................................. 241
Herve Chauris

Two-way Versus One-way: A Case Study Style Comparison ......................................................................................................................... 241
J. Bee Bednar, Chris J. Bednar, Changsoo Shin

Imaging Taglu: Anisotropic PSDM in a Permafrost Environment ......................................................................................................................... 242
Marko Mah, Scott Cheadle, George Reed, Parsons Chang

Practical Aspects of Parsimonious Migration for Velocity Tomography ........................................................................................................ 242
Weihong Fei, Young Kim

Adaptive Subtraction of Free Surface Multiples Through Order-by-order Prediction, Matching Filters, and Independent Component Analysis ........................................................................................................ 243
Sam T. Kaplan, Kristopher A. Innanen

Nonorthogonal Riemannian Wavefield Extrapolation .............................................................................................................................. 243
Jeff Shragge

Time-shift Imaging Condition for Converted Waves ................................................................................................................................. 244
Paul Sava, Sergey Fomel

Hybrid Fourier Finite-difference 3D Prestack Depth Migration for VTI Media ........................................................................................................ 244
Tong W. Fei, Christopher L. Liner

Illumination, Resolution, and Incidence-angle in PSDM: A Tutorial ........................................................................................................... 245
Isabelle Lecomte

Gaussian-beam Kirchhoff Prestack Depth Migration ................................................................................................................................. 245
Carlos A. S. Ferreira, Joao C. R. Cruz

Three-dimensional Wave-equation Depth Migration by a Direct Solution Method ................................................................................... 246
Dan Kosloff, Hillel Tal-Ezer, Allon Bartana, Evgeny Ragoza, Andrei Shabelansky

Robust Imaging Condition for Shot-profile Migration ........................................................................................................................... 246
Antoine Guitton, Alejandro Valenciano, Dimitri Bevc

Least-squares Attenuation of Reverse-time Migration Artifacts ................................................................................................................... 247
Antoine Guitton, Bruno Kaelin, Biondo Biondi

Stabilizing Explicit Frequency-space Migration Using Local WKBJ Operators ....................................................................................... 247
Chad M. Hogan, Gary F. Margrave
An Output Imaging Scheme of the Common Reflection Surface Stack: Applications to Real Data ................................................................. 2479
Kai Yang, Hua-Zhong Wang, Liang-Guo Dong, Shi-Yong Xu

3D Prestack Depth Migration by Hybrid Method ................................................................. 2484
Wensheng Zhang, Guquan Zhang

Prestack Gaussian-beam Depth Migration in Anisotropic Media ...................................... 2489
Tianfei Zhu, Sam Gray, Daoliu Wang

Specular Beam Migration - A Low Cost 3D Prestack Depth Migration .............................. 2494
Ian Cockshott

Offset-domain LCB Beamlet Prestack Depth Migration ...................................................... 2499
Mingqiu Luo, Shengwen Jin

Subsalt Velocity Analysis by Combining Wave-equation-based Redatuming and
Kirchhoff-based Migration Velocity Analysis .................................................................. 2505
Bin Wang, Francois Audebert, Dan Wheaton, Volker Dirks

Explicit High-order Reverse Time Prestack Depth Migration .......................................... 2510
Matthew H. Karazincir, Clive M. Gerrard

Separation of Focusing and Positioning Effects Using Wave Equation-based
Focusing Analysis and Poststack Modeling ...................................................................... 2515
Bin Wang, Dan Wheaton, Francois Audebert, Volker Dirks

Wave-equation Migration of Turning Waves ...................................................................... 2520
Shiyong Xu, Shengwen Jin

One-return Wave-equation Migration: Imaging of Duplex Waves .................................. 2525
Shengwen Jin, Shiyong Xu, David Walraven

Decomposition of P- and S- Waves Using Dispersion Relationship and Imaging ............. 2530
Hiroyuki Tokunaga, Hitoshi Mikada, Yoshinori Sanada, Yuzuru Ashida

Velocity Determination by Image-wave Remigration ......................................................... 2535
Amelia Novais, Joerg Schleicher, Jesse Costa

DSR-equation Prestack Tau Migration in Heterogeneous Media ..................................... 2540
Jiubing Cheng, Jianhua Geng, Huazhong Wang, Zaitian Ma

Imaging Steep Salt Flank with Plane-wave Migration in Tilted Coordinates ...................... 2545
Guojian Shan, Biondo Biondi

Optimized Implicit Finite-difference Migration for VTI Media ......................................... 2550
Guojian Shan

A Depth-migration Method Based on the Full-wave Reverse-time Calculation and
Local One-way Propagation ............................................................................................. 2555
Xiao-Bi Xie, Ru-Shan Wu

3D Focusing Transformation: Reliable Tool for Imaging of Scattering Objects ............... 2560
V. A. Pozdnyakov, V. Tcheverda

Optimizing the FOCI Algorithm with a Weighted Least-squares Approach .................... 2565
Saleh Al-Saleh, Gary Margrave

Explicit Wavefield Extrapolation Directly from Topography ........................................... 2570
Saleh M. Al-Saleh, Gary F. Margrave, John C. Bancroft

Traveltime-based True-amplitude Migration in Anisotropic Media .................................. 2575
Claudia Vanelle, Dirk Gajewski
3D CRS-based Limited Aperture Kirchhoff Time Migration ................................................................. 2580
Miriam Spinner

Interferometric Imaging by Deconvolution: Theory and Numerical Examples ..................... 2585
Ivan Vasconcelos, Roel Snieder

DSR Migration Velocity Analysis by Differential Semblance Optimization ..................... 2590
Alexandre Khoury, William Symes, Paul Williamson, Peng Shen

Accurate Imaging of Complex Salt Features with Narrow Azimuth Migration .................... 2595
M. M. Fliedner, S. Crawley, D. Bevc, B. Biondi

TTI Anisotropic Depth Migration: What Tilt Estimate Should We Use? .......................... 2600
F. Audebert, V. Dirks, A. Pettenati

Phases in One-way Wave-equation Migrations ..................................................................... 2605
Faqi Liu, Guojian Shan, Scott A. Morton, Jacques Leveille

Imaging Complex Salt Bodies with Turning-wave One-way Wave Equation ..................... 2610
Yu Zhang, Sheng Xu, Guanquan Zhang

Comparisons of Shot-profile Versus Plane-wave Reverse Time Migration ...................... 2615
Denes Vigh, E. William Starr

Modulated Shot Migration ........................................................................................................ 2619
Robert Soubaras

Fast Wavefield Migration for Wide-azimuth Data ................................................................. 2624
Elena Shoshitaishvili, Kyoung-Jin Lee, Scott Michell, John Etgen

A Migration Approach Based on Summation of Individual Trace Contributions 
and Wavefield Extrapolation ............................................................................................. 2629
Jianhua Pan

An Anisotropic Acoustic Wave Equation for Modeling and Migration in 2D TTI Media ................................................................. 2634
Hongbo Zhou, Guanquan Zhang, Robert Bloor

3D Common-offset Migration on a Vertically Aligned Fracturing Model ........................... 2639
Mingya Chen, Fred Hilterman, Julius Doruelo

Fast Beam Migration - a Step Toward Interactive Imaging ............................................... 2644
Fuchun Gao, Po Zhang, Bin Wang, Volker Dirks

3D Common-azimuth Fourier-finite Difference Depth Migration in Transversely 
Isotropic Media .................................................................................................................... 2649
Biaolong Hua, Henri Calandra, Paul Williamson

Fine-tuning Your Seismic Image: Prestack Data Warping to Improve Stack Quality 
and Resolution .................................................................................................................... 2654
Gabriel P‡rez, Kurt Marfurt

Is Your 3D Wave-equation Presdm Propagator Accurate Enough? .................................. 2659
Yongzhong Wang, Richard W. Verm, M. Lee Bell

Leading-order Seismic Imaging Using Curvelets ................................................................... 2664
Huub Douma, Maarten V. de Hoop

Poststack Velocity Analysis by Separation and Imaging of Seismic Diffractions ............. 2669
Sergey Fomel, Evgeny Landa, M. Turhan Taner

Imaging Condition for Reverse Time Migration .................................................................... 2675
Bruno Kaelin, Antoine Guittion
Residual Migration-velocity Analysis Using Common-angle Image Gathers ........................................ 2680
  Fan Xia, Yiqing Ren, Shengwen Jin

Study of the Influence of Propagator Amplitude Correction on Image Amplitude Using Beamlet Propagator with Local WKBJ Approximation ................................................................. 2685
  Jun Cao, Ru-Shan Wu

Separation and Imaging of Seismic Diffractions Using Plane-wave Decomposition ....................... 2691
  M. Turhan Taner, Sergey Fomel, Evgeny Landa

Elastic Migration in the Angle-azimuth Domain: Application to a Seabed Node Experiment ............... 2696
  L. Nicoletis, P. Froidevaux, O. Bouhdiche, France M. Mendes

Simulated Migration Amplitudes of Converted Waves: First Results .................................................. 2701
  Tina Kaschwich, Joachim Mispel

Seismic Depth Imaging with the Gabor Transform .................................................................................. 2706
  Yongwang Ma, Gary F. Margrave

Depth Mapping of Stacked Amplitudes Along an Attribute Based ZO Stacking Operator .................... 2711
  G. Garabito, J. C. R. Cruz, S. L. F da Luz

Migration Deconvolution Applied to Marine Seismic Data from Campeche Bay, Gulf of Mexico ........ 2717
  Guoan Luo, Sergio Chavez-Perez

Designing Stable Operators for Explicit Depth Extrapolation of 3D Wavefields Using Projections Onto Convex Sets ................................................................................................................. 2722
  W. A. Mousa, S. Boussakta, M. Van der Baan, D. C. McLernon

Implementation of 3D Wavefield Extrapolation Using Singular Value Decomposition ........................ 2727
  W. A. Mousa, S. Boussakta, D. C. McLernon, M. Van der Baan

Continuation of a Class of Seismic Processors and Associated Rays .................................................. 2732
  Anton A. Duchkov, Maarten V. de Hoop, Sergey Fomel

Refraction Migration: Imaging Multiple Refractors Automatically ...................................................... 2737
  Jie Zhang

Surface Multiple Attenuation in Shallow Water and the Construction of Primaries from Multiples ........ 2741
  Neil Hargreaves

Seismic Multiple Prediction Through Inversion for Real Data Application ........................................... 2746
  Yanghua Wang

Residual Moveout of 2D Multiples in Angle-domain Common-image Gathers ...................................... 2751
  Gabriel Alvarez

Mapping of Specularly Reflected Multiples to Image Space: An Example with 3D Synthetic Data ....... 2756
  Gabriel Alvarez, Biondo Biondi

Virtual Source Gathers and Attenuation of Free-surface Multiples Using Obc Data: Implementation Issues and a Case Study ................................................................. 2761
  Kurang Mehta, Roel Snieder, Rodney Calvert, Jonathan Sheiman

Predicting and Removing Complex 3D Surface Multiples with Wem Modeling - an Alternative to 3D Srme for Wide-azimuth Surveys? ................................................................. 2767
  Christof Stork, Jerry Kapoor, Wei Zhao, Bill Dragoset, Ken Dingwall
Fast Free-surface Multiple Attenuation Work-flow for 3D OBS Data
Barbel Traub, Anh Kiet Nguyen, Matthias Riede

3D SRME on OBS Data Using Waveform Multiple Modeling
A. Pica, M. Manin, P. Y. Granger, D. Marin, E. Suaudeau, B. David, G. Poulain, P. Herrmann

Application of Least-squares Joint Imaging of Multiples and Primaries to Shallow-water Data
Madhav Vyas, Morgan P. Brown

Land Multiple Attenuation - the Future is Bright
Panos G. Kelamis, Weihong Zhu, Khalid O. Rufaii, Yi Luo

Benefits from Small Aperture Fast-3D Wave-equation Surface-related Multiple Elimination
Grog Fookes, Yongzhong Wang

A Production Implementation of Data Regularization and 3D Srme for Complex Multiple Elimination
Richard Hanson, Russell Jones, Tom Langston, Brian Sharp, Jaime Stein, Jinsong Wang, John Weigant, Dennis Corrigan

Case Study of Surface-related and Internal Multiple Elimination on Land Data
Riaz Ala'i, Eric Verschuur

Near Offset Data Extrapolation
Adriana Citlali Ramirez, Arthur B. Weglein, Ketil Hokstad

Removing Multiples and Imaging and Inverting Primaries Beneath a Complex Ill-defined Overburden: Defining and Addressing the Pressing Seismic Challenge
Arthur B. Weglein

The Concept of Virtual Events: Attenuation of Internal Multiples
Ilana Erez, Luc Ikelle

Application of Extinction-theorem Deghosting Method on Ocean Bottom Data
Jingfeng Zhang, Arthur B. Weglein

OBS Multiple Attenuation with Application to the Deepwater GOM Atlantis OBS Nodes Data
Ganyuan Xia, Richard Clarke, John Etgen, Nurul Kabir, Ken Matson, Scott Michell

Interpolating Diffracted Multiples with Prediction-error Filters
William Curry

Multiple Removal and Wavelet Deconvolution in the Inverse Data Space
A. J. Berkhout, D. J. Verschuur

Shot Continuation
Francisco Miranda Fernandez

Reconstruction of Missing Data from Multiples Using the Focal Transform
G. J. A. van Groenestijn, D. J. Verschuur

Optimum Seismic Signal Estimation with Complicated Models of Coherent and Random Noise
Yuriy Tyapkin, Bjorn Ursin, Yuriy Roganov, Igor Nekrasov

Stack-and-denoise: A New Method to Stack Seismic Data Sets
Ramesh Neelamani, Thomas A. Dickens, Max Deffenbaugh

Signal Preserving Seismic Interference Noise Attenuation on 3D Marine Seismic Data
Sanjeev Rajput, Shikha Rajput
Interference Cancellation by Least-squares Modeling and Adaptive Subtraction

Stephen K. Chiu

Wavelet Threshold Denoising Based on Higher-order Statistics in Attenuating Random Noise

Zhaocai Wu, Tianyou Liu, Caihong Hua

On the Denoising Method of Prestack Seismic Data in Wavelet Domain

Mao Jian, Gao Jinghuai, Chen Wenchao

Preservation of Low Frequencies in Wide-angle Data Processing for Sub-basalt Imaging

Hassan Masoomzadeh, Penny J. Barton, Satish C. Singh

Attenuating the Ice Flexural Wave on Arctic Seismic Data

David C. Henley

Surface-wave Mitigation Using Wide-azimuth Super Gathers

John E. Anderson, Christine E. Krohn, Paul J. Lee

Correction for Water-velocity Variations and Tidal Statics

Celine Lacombe, Jon Schultzen, Suhail Butt, Didier Lecerf

Application of Stable Signal Recovery to Seismic Data Interpolation

Gilles Hennenfent, Felix J. Herrmann

Interferometric Prediction and Least-squares Subtraction of Surface Waves

Shuqian Dong, Reqing He, Gerard T. Schuster

Application of the Wave-equation-based Filtering to the Seismic Data in Mountain Area

Ke Benxi, Luo Guoan, Zhao Bo Zhao, Geng Weifeng

Vibration Noise Mechanisms in Streamer Arrays

Fred C. DeMetz, Sr

Automatic Moveout Correction by Local Event Correlations on Coherency-enhanced Gathers

Eric Duveneck, Barbel Traub

Multiazimuth (MAZ) Towed-streamer Data-processing Flow from the Nile Delta

Ted Manning, Jim Keggin, Walter E. A. Rietveld, Mark Benson, Chris Page

Edge Preserving Filtering on 3D Seismic Data Using Complex Wavelet Transforms

Michael Jervis

Fast Broadside Diffractors: A Case History

Necati Gulunay, Sylvere Depagne, Mag Magesan

The Stochastic Noise Attenuation in VSP

Man Weishi, Gao Jinghuai, Zhang Mengli, Bao Qianzong, Wang Wei

Wide-angle Data Processing in the Tau-p Domain: Continuous Nonelliptical Moveout Analysis

Hassan Masoomzadeh, Penny J. Barton, Satish C. Singh

Curvelet-based Ground Roll Removal

Carson Yarham, Urs Boeniger, Felix Herrmann

Managing Frequency-dependent Variations in Signal-to-noise Ratio

Steve McHugo, Malcolm Francis, Stephen Pickering, Alex Cooke

Toward the Seislet Transform

Sergey Fomel
Surface-consistent Gabor Deconvolution
Carlos A. Montana, Gary F. Margrave

Missing Data Interpolation with Gaussian Pyramids
Satyakee Sen

Two-stage Inversion for Large Surface-consistent Residual Statics
Side Jin

Volume 6

Quaternion-based Signal Processing
Ben Witten, Jeff Shragge

A Parallel-windowed Fast-discrete Curvelet Transform Applied to Seismic Processing
Darren Thomson, Gilles Hennenfent, Henry Modzelewski, Felix J. Herrmann

Autoregressive Extrapolation in the Frequency Domain for the Enhanced Deconvolution of Transmitted Seismic Waves
Saptarshi Dasgupta, Robert L. Nowack

Elimination of the Spread-length Bias in the Common-reflection-surface Stack
Nils-Alexander Muller

Voronoi Cell-based Staggered-grid SH Wave Numerical Simulation
Chaoshun Hu, Kirk McIntosh, Paul Stoffa

Parameter-oriented CRS Imaging
German Hoecht, Patrice Ricarte

Nonasymptotic Seismic Data Reconstruction
Francisco Miranda

Modeling the Reflection Coefficients and Slow Wave Mode Conversions at the Top and Bottom of a Gas-hydrate-bearing Interval
Juan E. Santos, J. German Rubino, Claudia L. Ravazzoli

A Multidimensional Acoustic Forward-scattering Series Model of Reflected and Transmitted Wavefield Events
Kristopher A. Innanen

A Frequency Criterion for Smoothing with Optimal Cubic Splines
Joerg Schleicher, Ricardo Biloti

Theory and Practice of Refraction Interferometry
Shuqian Dong, Jianming Sheng, Gerard T. Schuster

Uncertainty Estimation for Kinematic Wavefield Attributes
Tilman Kluever

Two Approaches for Q-estimation and Its Application to Seismic Inversion
Ran Bachrach, Ralf Ferber, Antouan Salama, Niranjan Banik, Randy Utech, David Keller, Mark Bengtson

Accuracy Improvement for Super-wide Angle One-way Waves by Wavefront Reconstruction
Ru-Shan Wu, Xiaofeng Jia

Seismic Interferometry for Passive and Exploration Data: Reconstruction of Internal Multiples
Kees Wapenaar
Multidimensional Seismic Imaging Using the Inverse Scattering Series ........................................... 3059
   Fang Liu, Arthur B. Weglein, Kristopher A. Innanen, Bogdan G. Nita

Poroelastic Modeling of Seismic Boundary Conditions Across a Fracture ........................................ 3064
   M.A. Schoenberg, S. Nakagawa

Conic Velocity Model ......................................................................................................................... 3069
   Igor Ravve, Zvi Koren

Imaging in the Presence of Shallow Velocity Anomalies: Nonfirst-break Technology ........................................... 3074
   Emil Blias

Residual Migration Velocity Analysis with Controlled Illumination .................................................. 3079
   Wang Changlong, Zhang Shulun, Yang QiQiang, Zhao Jingxia, Jiao Junru

An Improved Methodology for Subsalt Velocity Analysis ................................................................ 3084
   Junru Jiao, David Lowrey, John Willis, Daniel Solano

Quantitative Analysis of the Errors of the Velocity Field in the South Edge of Tianshan and Its Effect on Depth Imaging ........................................... 3089
   Hanming Gu, Lixin Qi

Velocity Model Building by Semblance Maximization of Modulated Shot Gathers ......................... 3094
   Robert Soubaras, Bruno Gratacos

Prestack Exploding-reflectors Modeling for Migration Velocity Analysis ...................................... 3099
   Biondo Biondi

Long-wavelength Solutions to the Surface Consistent Equations .................................................. 3104
   John Millar, John C. Bancroft

Residual Moveout Curvature and Kinematic Differences Between Velocity Models .................. 3108
   J. Schneider

Seismic Velocity Estimation and Time-to-depth Conversion of Time-migrated Images ........................................... 3113
   Maria Cameron, Sergey Fomel, James Sethian

Correcting an Rms Velocity Function Directly from Measurements of RNMO ........................................... 3118
   Douglas W. McCowan, J. M. Graul

Velocity-based Exploration for Basin-centered Gas Accumulations: A Paradigm Revised ................... 3123
   Mario A. Gutierrez, Brent A. Couzens, Neil R. Braunsdorf

Improving Resolution of Top Salt Complexities for Subsalt Imaging ........................................ 3128
   Elena Shoshitaishvili, Scott Michell, John Etgen, Dean Chergotis, Erik Olson

An Integrated Workflow for Imaging Below Shallow Gas: A Trinidad Case Study ...................... 3133
   Mehmet C. Tanis, Ole J. Askim, Steve Lancaster, Gavin Chung-Chi Shih, Luis Canales

Repeatability and 4D Seismic Acquisition ......................................................................................... 3138
   Ole E. Naess

Time-lapse Seismic Response to Injection and Depletion ............................................................. 3143
   Colin M. Sayers

A Nondifferencing Approach to Seismic Monitoring: Implications for Difficult Carbonate Reservoirs ........................................... 3148
   Abdelmoneam E. Raef, Richard D. Miller

Optimal Frequency of Time-lapse Seismic Monitoring in Geological CO2 Storage ...................... 3153
   Debarun Bhattacharjya, Tapan Mukerji, John Weyant
Measuring velocity sensitivity to production-induced strain at the Ekofisk Field using time lapse time-shifts and compaction logs ................................................................. 3158
Aaron L. Janssen, Brackin A. Smith, Grant W. Byerley

Production optimization using production history and time-lapse seismic data ........................................... 3163
Xuri Huang, Yun Lin

Prestack time-lapse seismic feasibility for heavy oil reservoir study using simulation model ................................................................. 3168
Jinmiao Zhang, Wei Zhao, Xuri Huang

Time-lapse seismic prestack attribute analysis by separated wavefield numerical modeling ................................................................. 3173
Jingye Li, Xiaohong Chen

Time-lapse (4D) seismic studies in the state of Kuwait: History and future................................................... 3178
Adel El-Emam

Reducing risk and monitoring water injection using time-lapse (4D) seismic at the Ekofisk Field ....... 3183
Grant Byerley, Jarle Pedersen, Kjell Oddvar Roervik, Kalum Ranaweera, Aaron Janssen

Tube-wave monitoring at Mallik Field: Comparing modeled and experimental time-lapse responses ................................. 3188
Sergey Ziatdinov, Boris Kashtan, Alexander Sidorov, Andrey Bakulin, Valeri Korneev

Value creation from 4D seismic at the Gullfaks Field: Achievements and new challenges ................................................................. 3193
Youness El Ouair, Lars Kristian Stronen

Fast local crosscorrelations of images ........................................................................................................... 3198
Dave Hale

Onshore 4D seismic repeatability at the gas storage geophysical laboratory ................................................. 3203
P. Faure, S. Spitz

Time-lapse seismic inversion of data from a compacting chalk reservoir ................................................................. 3208
Ruth S. H. Pettersen, Olav I. Barkved, Nirina Haller

Estimating 4D velocity changes and contact movement on the Norne Field ................................................... 3213
Victor Aarre

Fluid flow phenomena from 4D interpretation, Heidrun Field, Norwegian North Sea ................................................................. 3218
Yasril Kahar, Phil D. Anno, Line G. Haram

A simple methodology for 4D noise reduction and repeatability improvement ................................................. 3223
Alexander Zamorouev, Dave Whitcombe, Mel Dyce, Linda Hodgson

Detecting time-lapse seismic effects through wavelet transforms and self-organizing maps ................................................................. 3228
Marcilio C. Matos, Paulo L. M. Osorio, Roberto Fainstein

Time-lapse seismic crosswell monitoring of steam injection in tar sand ................................................................. 3233
Jesper Spetzler

Time-lapse seismic crosswell monitoring of CO2 injected in an onshore sandstone aquifer ................................................................. 3238
Jesper Spetzler, Ziqiu Xue, Hideki Saito, Dai Nobuoka, Hiroyuki Azuma, Osamu Nishizawa

Effects of pore structure on 4D seismic signals in carbonate reservoirs ................................................................. 3243
Continuous high-resolution seismic monitoring of SAGD ....................................................... 324
E. Forgues, J. Meunier, F. Gresillon, C. Hubans, D. Druesne

Quantifying the value of 4D data before the survey ................................................................. 325
Karl A. Berteussen

Using complex seismic attributes to improve 4D visibility of fluids contact movement ............... 325
Marco Schinelli

Spectral decomposition of 4D seismic data .............................................................................. 326
Bo Zhao, David Johnston, Wences Gouveia

Ultrasonic data testing of time-lapse tomography .................................................................... 326
D. D. Sijacic, J. Spetzler, K. H. A. A. Wolf

Short cable 4D investigation - A case history from the Amberjack Field in the Gulf of Mexico ................................................................................................................................. 327
W. John Kaldy, Ken Hartman, Pranab Sen, Chuck Barousse, Doug Stauber, Ellen Xu

Shear-wave time-lapse seismic monitoring of a tight-gas sandstone reservoir, Rulison field, Colorado ................................................................................................................................. 328
Michael Rumon, Tom Davis

Time-lapse monitoring of CO2 EOR and storage with walkaway VSPs ........................................ 328
Marcia L. Couslan, Don C. Lawton, Michael Jones

Determination of a seismic and engineering consistent petroelastic model for time-lapse seismic studies: Application to the Schiehallion Field .................................................................................. 329
Mariano Floricich, Colin MacBeth, Jan Stammeijer, Rob Staples, Andrew Evans, Niels Dijksman

Seismic monitoring of pressure depletion evaluated using azimuthal AVO data? ........................... 329
Faisal Al Kindi, Colin MacBeth, Asghar Shams

Inverting for the petroelastic model via seismic history matching ............................................. 330
Karl D. Stephen, Colin MacBeth

Assessing the value of sensor information in 4D seismic history matching .................................... 330
H. Klie, A. Rodriguez, S. G. Thomas, M. F. Wheeler, R. Banchs

Toward accurate quantitative monitoring of compacting reservoirs using time-lapse seismic ......... 331
Margarita Corzo, Colin MacBeth

Well-seismic bandwidth and time-lapse seismic characterization related to CO2 injection and fluid substitution: Physical considerations .......................................................... 332
Yinbin Liu, Don C. Lawton

Repeatability observations from a time-lapse seismic survey .................................................... 332
Shelby L. Walters, Richard D. Miller, Abdelmoneam E. Raef

Time-lapse seismic study of levees in southern New Mexico ..................................................... 333

Compaction and 4D time strain at the Genesis Field ............................................................... 333
James Rickett, Luca Duranti, Tom Hudson, Neil Hodgson

Simulation and monitoring of geometric repeatability for 4D streamer acquisition ................. 334
Richard T. Houck

Curved rays anisotropic tomography: Local and global approaches ......................................... 334
Zvi Koren, Igor Ravve, Paradigm, Dan Kosloff
Geostatistical cosimulation and downscaling conditioned to block data:
Application to integrating VSP, travel-time tomography, and well data

Yongshe Liu, Andre G. Journel, Tapan Mukerji

Tomographic inversion by matrix transformation

Jonathan Liu, Lorie Bear, Jerry Krebs, Raffaella Montelli, Gopal Palacharla

A tomographic image of upper-crustal structure using P- and S-wave seismic
refraction data in the southern granulite terrain, India

Laxmidhar Behera, B. Rajendra Prasad, P. Koteswara Rao

Introducing wavelets in traveltimetime tomography: Application to foothills

M. Delost, S. Operto, J. Virieux, F. Adler

Application of refraction tomography algorithms to real data

Wansoo Ha, Sukjoon Pyun, Changsoo Shin, Dong-Joo Min

Tomographic inversion based on CFP technology

Jiangping Liu, Yinhe Luo, Yao Yao

Adjoint wave-equation velocity analysis

U. Albertin, P. Sava, J. Etgen, M. Maharramov

P-wave tomographic velocity updating in 3D inhomogeneous VTI media

Jianxin Yuan, Xiaochun Ma, Sonny Lin, David Lowrey

Fermat’s interferometric principle for redatuming surface sources and PS
transmissions traveltimes to the target body

Xiang Xiao, Min Zhou, Gerard T. Schuster

3D tomographic updating with automatic volume-based picking

Dimitri Bevc, Moritz Fliedner, Joel VanderKwaak

Time migration tomography

Richard Leggott

High-frequency static corrections using tomographic inversion

Feng Zeyuan, Li Peiming, Zhang Zhenqiang, Hou Xichang

Multiscale aspects of wave-equation reflection tomography

Maarten V. de Hoop, Robert D. van der Hilst, Peng Shen

An iterative approach for geophysical diffraction tomography: Implication for true
amplitude migration

Fuchun Gao, Alan Levander, Colin Zelt

Enhanced tomography resolution by a fat ray technique

Sheng Xu, Yu Zhang, Tony Huang

Wide-azimuth tomography - Is it necessary?

Susan LaDart, Jin Lee, Elena Shoshtaiashvili, John Etgen, Scott Michell

Depth-velocity model building using multiscale tomography? Part 1

Jun Cai, Mike Witcombe, John Weigant, Jingjin Du

Depth-velocity model building using multiscale tomography? Part 2

Mike Witcombe, Jun Cai, John Weigant, Jingjin Du

2D stereotomography for anisotropic media

Steinar Nag, Mathias Alerini, Eric Duveneck, Bjorn Ursin

Sensitivity analysis for stereotomography in elliptic and anelliptic media

Brenda S. S. Barbosa, Jesse C. Costa, Ellen N. S. Gomes, Jorg Schleicher
Hybrid ray tracer and amplitude calculation with finite difference, graph theory, and ray bending ................................................................. 3440
  Chaoshun Hu, Kirk McIntosh, Harm van Avendonk, Paul Stoffa

Diving-wave refraction tomography and reflection tomography for velocity model building ........................................................................ 3445
  Mehmet C. Tanis, Hemang Shah, Peter A. Watson, Mark Harrison, Sherman Yang, Lee Lu, Charles Carvill

Time-lapse VSP field test for gas reservoir monitoring using permanent fiber optic seismic system .......................................................... 3450
  Jacques Blanco, Sverre Knudsen, F. X. Bostick III

Virtual shear check shot with airguns ........................................................................ 3455
  Andrey Bakulin, Albena Mateeva, Rodney Calvert, Patsy Jorgensen

Understanding complex wave modes in a well completion with permanent fiber-optic 3-C in-well seismic sensors ........................................ 3460
  Jacques Blanco, F. X. (Tad) Bostick III, Sverre Knudsen

Automatic first arrival picking for three component 3D VSP data .......................................................... 3465
  Emil Blias

Wave-equation migration for 3D VSP using phase shift plus interpolation .................................................. 3470
  Tong W. Fei, Qinglin Liu

Multiple attenuation in VSP multiple imaging and primary imaging .......................................................... 3475
  Zhiyong Jiang, Brian E. Hornby

Azimuthal multiattribute analysis for fracture properties in time-lapse VSP data .......................................................... 3480
  Isabel Varela, Enru Liu, Mark Chapman

Salt flank imaging using offset VSP as an aid to cavern construction .......................................................... 3485
  Xiaomin Zhao, William Green, David Hayden, Fran Doherty, James Jackson

Velocity profile prediction using walkaway VSP data ........................................................................ 3489
  Nobuyasu Hirabayashi, W. Scott Leaney

Migration of interbed multiple reflections ........................................................................ 3494
  Zhiyong Jiang

Redatuming CDP data below salt with VSP Green's function .......................................................... 3499
  Xiang Xiao, Gerard T. Schuster

Fracture orientation estimation using circular VSP .......................................................... 3504
  Ran Zhou, Roberto Miandro, Claudio Chinigo, Min Lou, Zahid Patval, Nicholas Dray

Fracture detection by P- and C-wave anisotropy from multiazimuth VSP .......................................................... 3509
  Qinglin Liu, John Owusu, Jaafar Alnemer

2D CO CRS imaging for multicomponent data recorded by the VSP geometry .......................................................... 3514
  Markus von Steht

Fault-shadow correction estimation in Sisi-Nubi Field using an integrated surface and well-seismic inversion approach .......................................................... 3519
  Ramin Nawab, Jean-Jacques Schnitzler, Pierre Delbushaye, Yuriza Noor, Gregoire de Tomac, Jean-Claude Puech

Intrinsic and apparent seismic attenuation in VSP data .......................................................... 3524
  Armin B. Haase, Robert R. Stewart

Velocity dispersion in vibroseis VSP data ........................................................................ 3529
  Langqiu F. Sun, Bernd Milkereit
Imaging dipping sediments at a salt dome flank - VSP seismic interferometry and reverse-time migration ................................................................. 3534
Rongrong Lu, Mark Willis, Xander Campman, Jonathan Ajo-Franklin, M. Nafi Toksflz

3D wave-equation interferometric migration of VSP multiples ................................................................. 3539
Ruiqing He, Brian Hornby, Gerard Schuster

The “Green Canyon” event as recorded by the Atlantis OBS node survey ........................................... 3544
Joe Dellinger, Jerry Ehlers, Richard Clarke, Meredith Nettles

Mechanics of submarine landslide initiation ..................................................................................... 3549
Stephen J. Martel

Seismic Stability of Submarine Clay Slopes ...................................................................................... 3550
Farrokh Nadim, Tore J. Kvalstad

Teleseismic analysis of two unusual seismic events in the Gulf of Mexico in 2006 ..................... 3555
Meredith Nettles

The structural setting of the Green Canyon seismic event and a review of possible processes responsible, from basement to sea floor ......................................................... 3556
Frank Peel

Uranium Model types within the Context of 2006 Global Exploration Activity ........................................ 3560
David Thomas, Dan Brisbin, Gerard Zaluski, Garth Drever

Advances in airborne EM acquisition and processing for uranium exploration in the Athabasca Basin, Canada .................................................................................. 3561
Richard Irvine, Ken Witherly

Exploration for unconformity uranium deposits with audiomagnetotellurics ........................................ 3566
Martyn Unsworth, Volkan Tuncer, Jim Craven

Enhancing Uranium Exploration Through Seismic Methods and Potential Field Modeling at the McArthur River Mine Site, Saskatchewan .................................................. 3567
Clare O’Dowd, Garnet Wood, Dan Brisbin, Brian Powell

Recent trends in portable geophysical logging equipment and software for uranium exploration ................................................................. 3568
John R. Stowell, James J. LoCoco, Timo Korth

Application of Seismic Methods in Uranium Exploration ...................................................................... 3569
Z. Hajnal, B. Pandit, I. Gyorfi, E. Takacs, B. Powell, R. Koch

Geophysics applied to new uranium discoveries in the Athabasca Basin ........................................ 3570

TITAN-24 MT and DC-Resistivity Survey Results over Shea Creek, Northwestern Saskatchewan ................................................................. 3571
Jean M. Legault

3D Resistivity in the Athabasca Basin with the Pole-Pole Array .......................................................... 3572
David Bingham, Grant Nimeck, Garnet Wood, Tyler Mathieson

MultiLoop III – A significant step ahead in electromagnetic modelling .............................................. 3573
Peter Walker, Yves Lamontagne